

Field Book
of
W. L. Jepson

[If lost - finder please
return to Dr. W. L. Jepson,
Department of Botany, Uni-
versity of California, Berkeley,
California, and receive reward.]

It is valuable only to the
owner.

— " —
University of California

- 1917 -

Hancock's Cañon, Panamint Mts.
Inyo Co. May 16, 1917. 5000 ft.

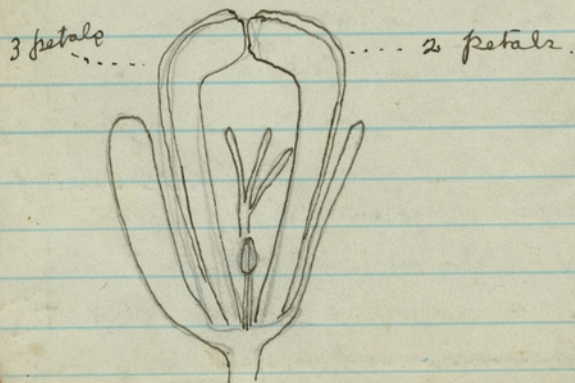
No. 7087. ^{Echinocereus} ~~Larrea~~ mohavensis Engelm.
f. Bigel. ^{var.}
This cactus grew on the rocky
cliffs at the big spring.

No. 7088. *Eriogonum maculatum*
4500 ft. Nash.

No. 7089. *Eriogonum saxatile* S. Wats.
The stems proper are below the
leafy clump, many stems arising
from the crown, which thus
results in a roundish bush-
like plant. Rocky slopes.

No. 7090. ^{formosa var.} *Aquilegia truncata* Fr.
By stream in cañon bottom.

- *Phacelia perityloides* Cov. no. 7060.
continued from vol. 33, p. 192.
Flower bilabiate. Two upper
petals erect; lower 3 somewhat
spreading. Upper sepals recurving
at apex; lower sepals erect!
The blades seem comparatively
short; the claws form the
"tube" of the corolla and are
as if grooved or semi-tubular
on the inside.



May 16, 1917

In the bud the flower appears like an
arch of petals; one can see through
from side to side between the sets
of petals.

In another flower, opened, I
find the cor. split close to base on
one side, united full length tube
on other, as also lobes of lower lip.
Upper petals joined half-way.
I think there can be no doubt
these early flowers, at least, are
teratological. As I find various
degrees of union of petals, and
unequal union of petals in the
same flower. But it is singular
that chorisis of petals in a
normally regular flower should
be accompanied by bilabiation.
In the flower just referred to there
are 4 unequal styles and 3
placentae.

Another flower still shows a slit down one side to base and a split between 2 lobes of upper lip occurring in the middle position (i.e. united above and below.).

The plant grew in a crevice of a cliff, and hung down so as to make a drapery six feet long; the stems were certainly 4 ft. long, perhaps longer.

Not far from the big spring in Hanaupah Cañon. Odor semi-nephritic and very disagreeable.

✓ No. 7091. *Gilia* ^{*australis* (Mason + A. Grant)} ~~*latiflora* Wats.~~ V. Grant
Cor. pink. Wash.

✓ No. 7092. *Arabis perennans* var. ~~*longipes* Jackson~~
This crucifer grew in the crevices of the granite cliffs and it was impossible to get their roots.

✓ No. 7093. *Astragalus coccineus* Bdg.
I suspect this to be the species of which a few scarlet flowers were brought into camp first day here.
Rocky slope, near big spring.

✓ No. 7094. *Atriplex canescens* James.
4 ft. h. Rocky slope. 4500 ft.

✓ No. 7095. *Ephedra viridis* Cov. ♂
Rocky slope. 4500 ft.

✓ No. 7096. *Ephedra viridis* Cov. ♀
Two fls. in a place. Fruits with flat faces and carinate back.
354 ft. h. 4500 ft. Remarkable for the yellowish color and parallel effect of the branchlets, as parallel as if lines drawn by a ruler.

No. 7097, *Carex latebrosa* Maclean ^{Det. R. H. M.}
Moist hillslope, associated
with *Phragmites vulgaris*.
4500 ft.

No. 7098. *Epipactis gigantea* Druce
Streamlet border. 2 1/2 to 3
ft. h.

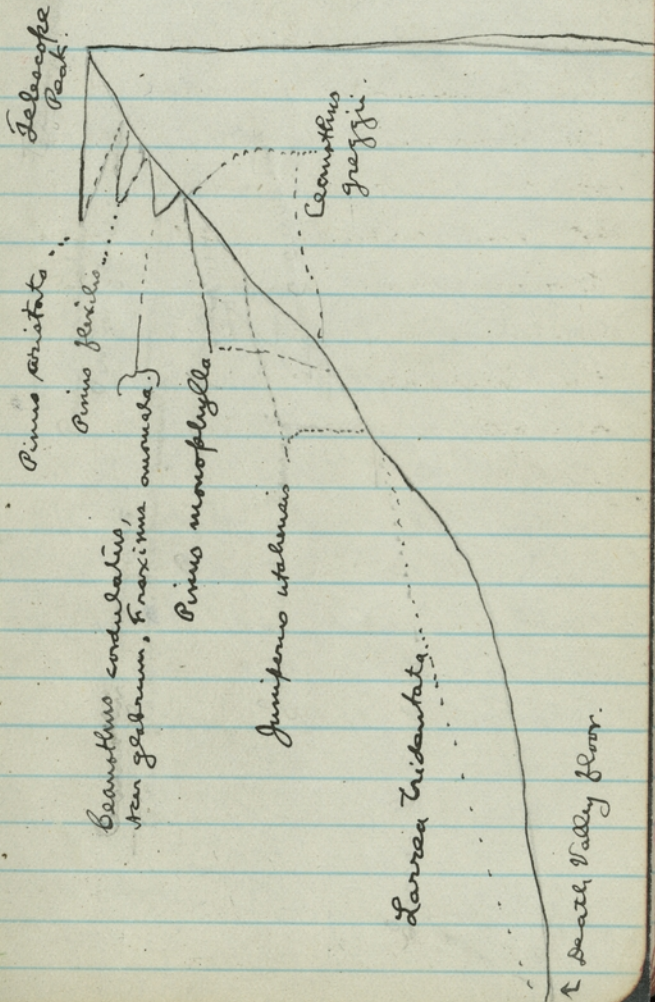
— *Mirabilis Californica* No. 7066.
cont. I am unable to see or to
recall any difference in habit or
in flowers between this bush
and that of the Mohave
Desert about Barstow. It seems
in every respect quite the same.

No. 7099. *Vitis girdiana* Munson.
Stems 5 to 20 feet long. Stamens
6; cor. segments 6, splitting from the
base and apparently remaining united

by their tips when they fall; ovary appar-
ently sterile in flowers examined.
Abundant along stream in cañon
and extending up moist slopes on
the cañon sides for a short distance
above the bed. Petals appear to
be uniformly 6; stamens 6. Style
none as we ordinarily know it, but
a depressed or somewhat umbilicate
structure.

— *Covania stansburiana* Torr.
The "sentimental" plant for this
country, the desert's type, is the
Cliff Rose. It is truly a very
interesting now, so completely
clothed in blossoms, with a
quite simple kind of beauty.
The plants are often tree-like
in form, gnarled and twisted,
shreddy bark, trunk 6 to 8 in.
diam. and 1 to 3 ft. h., the plant
7 feet high.

Opposite, on p. 9, is a
 diagrammatic section of east
 half of the Panamint Range, beginning
 on the floor of Death Valley
 at the mouth of Hanaupah
 Cañon and ending on the
 summit of Telescope Peak,
 the highest point in the
 range.



-Water indicators. The only composite in close association with the willow, grape and clematis in the cañon bottom at this place is *Sarcobatus vermiculatus*. It is a very important element in the jungle, forming heavy thickets difficult to penetrate. Further down the cañon beyond the range of the willow it forms clumps 6 to 7 ft. h. and twice as broad. — In addition to the above *Phragmites vulgaris* and *Cladium Mariscus* are sure signs of water.

on rocky hillsides 4 to 8 or more cylinders in a cluster and about 12 to 15 in. h.

= *Echinocactus*

No. 7100. *Cylindropuntia engelmannii* Parry.
This cylindric cactus grows

Hanampah Cañon to Eagle Borax
works, Death Valley.

- Today we go out of the cañon on the return to Furnace Creek. This has been a most pleasant camp, at just the right altitude, 4000 ft. Our ^{camp} kitchen was by the rushing streamlet, in the cañon bottom, which made a great singing sound day and night. The camp spot is under willows, admirably protected from the sun, its level a little below that of the stream which is banked and with a broad flat stone on its edge for convenience in washing, etc. We ate here and did most of our work here. About 30 feet above, on a little hillside bench, is our sleeping outfit. With a fine

May 18, 1917

view of Telescope Peak and of the cañon walls, and without mosquitoes or pests of any kind, life runs on very contentedly the few days we are here.

Returning down the cañon bed I make the following observations on distribution in the wash:

- *Chrysothamnus* (No. 6958)

is the most abundant bush in the wash from the camp down nearly to the mouth of the north fork of Hanampah Cañon.

- *Chrysothamnus* (No. 6959) may be as abundant ^{as p 36} as *Chrysothamnus* no. 6958, lower down or even more abundant. It extends further down than no. 6958, say to the mouth of the cañon. I collect it again as no. 7107.

- *Percophyllum Schottii*

This comes in just where the

Hanalei-poh Bation, to Eagle Borax
14 works, Death valley.

canyon definitely opens out onto the mesa. It has a very definite position, just as definite as in the Funeral Mts., being strictly a foothill type and not extending back into mountain country. It is certainly one of the most impressive of the sub-zonal types.

- *Dalea Johnsonii*. A little above *Percephyllum Schottii*'s zone, say a mile, is a very narrow zone (1 mile maybe) of this species. cf. no. 7103.

The common species of the mesa above the base of the Panamint Mts. and the floor of Death Valley is *Encelia frutescens*. From mountain base all the way down the tilted mesa I find *Boerhaavia annulata* Cov. It

May 18, 1917

15

would doubtless seem rather common if a good year gave it a chance to show itself. *Charizanthus rigida* is one of the most common things on the mesa, of course quite dried up now.

On the lower plain *Atriplex polycarpa* comes in, and then *Pluchea sericea* on the flat.

The great salt seas of Death Valley are margined by a broad band of *Spirastachys occidentalis*. It forms clumps, being built up in little colonies on a tiny sand-dune. The plants are mostly $\frac{1}{2}$ to 1 foot h., but occasionally 2 ft. h. The "sand-dune" is perhaps $\frac{1}{2}$ to $\frac{3}{4}$ ft. above the plain level. This zone of *Spirastachys* is perhaps a mile wide at most to commonly $\frac{1}{2}$ mile.

No. 7101. *Phacelia rotundifolia* Torr.
Wash. Flowers normal.

No. 7102. *Lupinus excubitus* Jones.
Fruit of No. 6950. Wash.

No. 7103. *Dalea Johnsonii* Nutt.
Wash just above junction
with North Fork Hanaukah
Cañon. 2600 ft. See p. 14.
= *Parosela fremontii* Vail var. *Johnsonii* ^{Jepson}.

No. 7104. *Plantago scariosa* Morris.
with no. 7103

No. 7105. *Mohavea breviflora*
bov. Wash. with no. 7103.

No. 7106. *Percnophyllum Schottii* (Gray) Gray Wash just at
below the forks of the

contin. See p. 13.

No. 7107. *Chrysothamnus* ^{*paniculatus* (Gray)}
Cañon fork. See p. 13. ^{1 Hall}
2500 ft.

No. 7108.

with 7107.

No. 7109. *Viguiera reticulata* Wats.
with 7107.

No. 7110. *Oreolhena cardiophylla*
Torr. Just below Cañon
forks. 2600 ft.

- Eagle Barax Works (there are
no works there now) is a good
feeding place for animals. There is
also water (brackish but potable)
and wood. A heavy gale blew
from the north as we came down
the mesa to this place; but I

found a sheltered spot amongst the Mesquite trees where it was as calm and still and peaceful as if the storm were not raging. It rained a bit as we came down (it rained two days as we went up), so that we had cool trips in both directions.

This morning the Panamint from Baldy south to Sentinel Peak at least show a light fall of snow. The Grapevine Mt. also show fresh snow.

Distances:

Eagle Borax works

To Bennett's Wells, 3 mi.

To Tule Hole, 3 mi.

To Furnace Creek, 19 mi.

Tule Hole to water in Chuckawalla Cañon, 6 mi.

From point on road to water in Trail Cañon next north

(the Death Valley Cañon of the map), 10 miles.

On arriving at Furnace Creek we learned from Mr. Denton that Death Valley Scotty had passed north through the valley, and reported our outfit as having been seen at Eagle. Scotty is returning to his ranch in the Grapevine Mts. He had with him a man who was lost and whom Scotty had found in Kingate Pass. Scotty put the stranger on a pack mule and brought him along.

May 20.

It snowed last night, again, on the Panamint and on Truckee Mt. A great gale of wind blew here at Furnace Creek.

In several places I see the Ring-tailed lizard, the species of the Mohave Desert.

- When we were at Eagle a rain storm passed over the valley. After it the clouds and the ranges down the valley were very striking. The range southward, which from here seems to close the valley in that direction was especially wonderful in its liquid purples. This coloration was, however, atmospheric, and the coloring in Death Valley is mostly not atmospheric. The nearest series of the Black Mts. opposite us, is very dark red, a red culminating in a very deep, an intense red in the top of the mountain. Near Furnace Creek the range shows singular series of yellow cliffs and peaks, and a mass with a deep-red band across the top of it. On Furnace Creek

May 20, 1917

itself are a series of white hills, their canons and gullies so real, - and yet so unreal because not a plant, not even a boulder seems to modify their singularity. The range will now be a shade of dark red-brown, now of dark green, again of slate ^{and green} and terra-cotta. But in the multitudinous shades, - usually there is only one shade in a place, or one dominant shade, - there is one element in common, - they all seem washed in, in pure but subdued and purified color. At the upper end of Death Valley proper on the west side are blue mesas - the only ones I have seen of this color. Almost a deep marine blue, but distinctly a blue, altho with a green tone in it. Its color quality is the same as the others.

No. 7111. *Suaeda*.

Two to 3 ft. h., bushy, usually with ascending or spreading branches at base and erect in center, making an irregular ^{and stiggly} but usually full bush. The new or season's foliage shoots are 1 to 2 feet long; they are decidedly gray with spreading or ascending leaves. At the base of these shoots are clusters of the old foliage. These two bunches of foliage do not look as if they belonged to the same plant! The old leaves are thick and fleshy, almost terete, and yellowish. These leaves, I take it, must develop from the axillary branchlets of the shoots, such as above described. These branchlets on the new growth are mostly very short and undeveloped at present. The foliage

May 21, 1917.

on all of this growth is of one aspect - gray and not very fleshy. ~~But~~ the leaves of the shoots are longer and more remote, than the leaves of the branchlets which are shorter and close together. In other words the last year's foliage which still persists is of this axillary branchlet kind.

This species does not seem to me at all like the Colorado River plant even with the added knowledge of the heterophyllum of the present plant I could not reconcile the two.

- Ravens are flying about here. I saw them also at Furnace Creek Ranch where the birds were numerous ^{at Furnace Creek}. In particular there was the family dusky-black *Phainopepla nitens* with a Forknot and show-

Salt Well, Death Valley

ing no color markings, save on flying the wings showed white feathers with the black ones in a very striking way.

Salt Well is a well 5 feet deep in the alkali flat near Salt Creek which is a flowing streamlet, small but running briskly. There are mesquite bushes, *Pluchea sericea* and *Juncus*, (No. 6943) the same as at Eagle Borax Works. The meadow is marshy and the crossing of Salt Creek is a rather troublesome matter. Beyond Salt Creek great sand-dunes come into view, of two kinds, moving dunes of the usual sort, and stationary dunes held down by Mesquite. These stationary dunes, look like hanging gardens, clumps of

May 21, 1917

trees raised ^{each} on its own mound. On the flat this side of the Mesquite dunes occurs the most remarkable growth of *Pluchea sericea*. It looks like an orchard or rather a vineyard with the grapes trained into tall columns. The bunches are separate, that is more or less regularly spaced.

Death Valley Buttes come into full view as we skirt the north mesas of Tucki Mt., as do the heights of the Grapevine Mts., very high and broken, worn for this country. We continue circling the mesa-wash and finally head up a long wash running southwards and at last turn abruptly to the left and enter the celebrated Emigrant Cañon. Its rather low walls present a strange appearance as

we travel up it in the semi-darkness. Rude and heavy columns with intercessing vertical walls supporting arches; hollows and cliffs. About 9:15 o'clock we reach Emigrant Springs.

This is an old road over which we pass but never much used and very rough, ^{but a good desert road.} The country it traverses is broken and gorged by washes banked and strewn with interminable lines and mazes of rubble and boulder. Now the "Emigrant's party", that made the valley famous in early days, managed to move up through this country as far as Emigrant Springs now, beats my powers of imagination.

Emigrant Springs issues from a side-cañon. The water is of excellent quality. A cabin and a

May 22, 1917.

shed mark the spot in the main cañon.

The Black-headed Grosbeak is busy here, nest-building.

The great wash which heads in to Emigrant Cañon from Death Valley is filled with *Parrea tridentata*. In the wash I saw a spot abounded with *Eucnide urens* — the most abundant and luxuriant colony I have as yet seen.

[There were great Horse Flies or flies that resembled them, that flew with incredible swiftness, darting off at sharp angles in the most remarkable way. They bite quickly and thru one's clothing. I could not strike quickly enough to kill them. Curiously enough I found that by advancing the hand very very slowly one could always kill them. Cf. Darwin's Journal, p. where he rides slowly in a circle about a bird until close enough to kill it with a club.]

- Species noted here: -

Salazaria mexicana Torr.

Franseria dumosa

Larrea tridentata (D.B.) var. *glutinos*^{Japan}

Lycium andersonii Gray. ^{Water-Jacket.}

Dalea (No. 7119)

Stanleya pinnata

Tetradymia (No. 7121)

Chrysothamnus (Same as no.

7107, without any doubt. Very abundant in the whole wash, by far the dominant, and for long stretches as if the only thing).

Chrysothamnus (Same as No.

6958. I have noted only a single bush so far.).

There are more!

Grayia spinosa

Striplex Parryi.

May 22, 1917.

- Emigrant Springs, water indicators:

Baccharis sergilivides

Appears closely cropped down by sheep.

Prosopis juliflora

No. 7112. *Mentzelia multiflora* Gray. ^{4100 ft.}
See new det. Petals 5, the 5 dilated.

Filaments alternate with them
very petaloid; also 4 or 5 less
petaloid filaments opposite the
petals. All the petaloid filaments
with anthers. = *M. leucophylla* T. Bdg.

No. 7113. *Artemisia spinescens* ^{Eaton}
Very spinose, 6 to 8 in. h. Stems
very stocky, the season's growth
very short. It is a woody
dwarf, with comparatively little
herbaceous portion. Rocky hill-
slopes.

No. 7114. *Stanleya pinnata*
Moist wash. 2 to 3 1/4 feet h.

No. 7115. *Eriogonum maculatum*
Sandy hillslope.

No. 7116. *Eriogonum nidularium* Cov.
Sandy hillslope.

No. 7117. *Eschscholtzia parishii* Greene.
Sandy-gravelly slope.

No. 7118. *Cowania stansburiana* Torr.
Wash. = *C. mexicana* Dou var. *stansbur-*
iana Jepson.

No. 7119. *Dalea*
Wash. 1 1/2 ft. h. Broad bush.
to 2
= *Parosela fremontii* Vail var. *saunderi*
Webb.

- No. 7120. *Sphaeralcea eremicola* ^{4200 ft} Jepson n. sp.
Corolla apricot-yellow. Wash.
[No. 14,081. *Sphaeralcea ambigua* Gray,
see vol. 48, p. 49.]

- No. 7121. *Tetradymia axillaris* A. Nels.
Rocky hillslope. 2 ft. h.

- No. 7122. *Thamnosma montana*
Torrey & Frem.

- No. 7123. *Coleogyne ramosissima* Torr.
Thorny intricate bush 2 ft. h.
Rocky hillslope.

- No. 7124. *Hymenoclea salsola* T. & G.
Wash.

- No. 7125. *Chrysothamnus teretifolius*
(Dur. & Hall) Hall
Rocky slope, rounded bush, 2 ft. h.
see next p.

- *Chrysothamnus*, No. 7125, cont.

The rocky hillslope form of the
wash No. 6959 was remarked and I
think noted in Hancampoli Cañon. It
occurs here also. Is lower and more
shrubly branched than the wash form.
It has dark almost black bark
but so has 6959 on its old stems.
The yellow ^{barked} shoots of the hillside
form are very short, corresponding
to its rocky habitat; the yellow barked
shoots in 6959 are quite long. The
infl. in the hillside form is short
and set low in the foliage; but
so is 6959 sometimes. I have
compared the foliage of the two
here at this place, and in hue
and other particulars they are
identical. No. 6959, perhaps more
characteristically, shows clusters
of yellow stalks, without any
brown-black bark.

— Some yellow cliffs bound the wash, especially on the west side, at this place. On these cliffs grow *Eriogonum Heermannii* plants (No. 7047). The cliffs appear to be their characteristic habitat, combining observations at this place and at Hanaukahi Cañon. The plants here are $\frac{1}{2}$ to $1\frac{1}{2}$ ft. h. They look, in their dense weave, like dense-headed Live Oaks, with somewhat irregular crowns resting on the ground. Or, like regular-crowned Live Oaks. Or, some of the smaller look a little like sponges. It is difficult to find a comparison which will satisfy their shortly forking branchlets, the forks in divarication and length being so regular! My diagnosis of the species, based

May 23, 1917.

upon herbarium material, is faithful, but as to describing the habit of the plant, how inadequate. The effect of the plant in color is a dark green.

— In the middle of the night a band of ^{wild} donkeys from the desert came into the wash to water at the spring. They made a most infernal rampus, raising Cain with their trays and tin-cans with their heels. Dixon remarked something about donkeys this morning and McQuesten, the youngest of our party, inquired: What donkeys? And I said: The wild asses from the desert came in and shot up the town last night. Whereat he was much astonished. So much for the sound sleep of youth. As to

Flat between Skidoo and Wildrose Cañon
 = Harrisburg Flat. 4900 ft.
 the wild burros, — the desert seems
 to be full of them. There were
 forty seminud ones at Eagle.

- Plants at this place, all fresh:
 * *Lycium* (no. 6612) *Andersonii*, Gray.
Artemisia spinosa

Common, one of the most
 characteristic things here.
 Remarkable for its dark
 green foliage. $\frac{1}{2}$ to 1 ft. h.

Eurotia lanata

Common

Atriplex, probably *torreyi*.

Chrysothamnus no. 7126.

Stanleya pinnata, common.

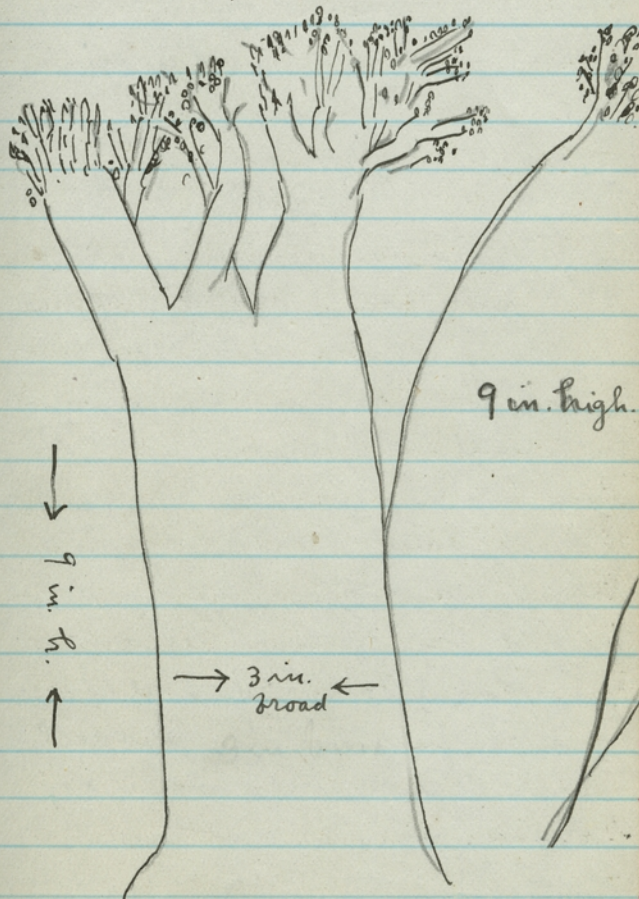
True Rabbit Brush ^{2 ft. h.} of Hanaupah
 Cañon with very small heads (no.
Ephedra (no.) of Hanaupah
Tetradymia (no. 7121) Lower Camp.

no. 7126. *Chrysothamnus viscidiflorus* (Hook.) Nutt. aff. var.
pumilus (Nutt.) Tepsor.

* *Lycium*, same as no. 6612.

May 23, 1917.

— *Artemisia spinosa*.



Rough sketch, to show relative

Artemisia spinosa

38 Harrisburg Flat, Inyo Co.

size of trunk and inflorescences.

This is a genuine desert-dwarf.

Many species of bushes similarly have very stocky stems at or near the ground.

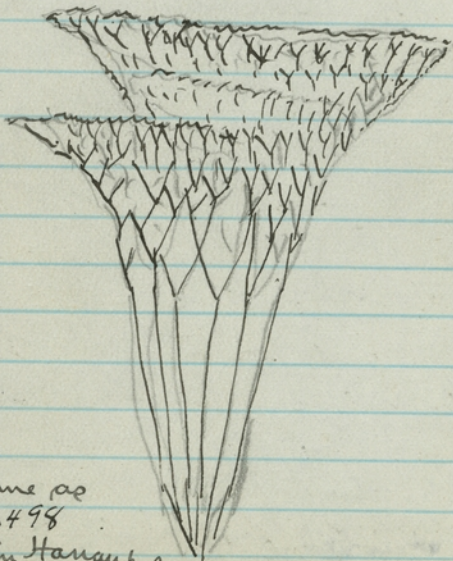
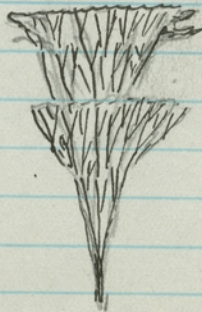
— Harrisburg Flat, see p. 54, 62.

— Wild Rose Cañon runs about east and west. Wild Rose Spring is one of those delightful surprises which one occasionally meets in the desert. One comes upon Wild Rose Cañon from the north by a lateral cañon, and Wild Rose Spring in a green meadow surrounded by willow trees and a wonderful tangle of wild roses now in full bloom suddenly bursts upon one's desert-weary vision. There is a streamlet of briskly running water, the meadow is green and wet, and the air is luxurious with the sweet odor of the rose bloom. See p. 61.

May 23, 1917.

39

— *Eriogonum**
in the wash, lower part of Wild Rose Cañon.



* Same as
no. 6498
coll. in Harauyah
Cañon.

No. 7127. *Salix exigua* Nutt.
12-16 ft. h.

No. 7128. *Rosa woodsii* Lindl. var.
4-8 ft. h. ~~*ultramontana*~~ *gracilissima* Jepson.

No. 7129. *Baccharis sergiloides*
Torr.

No. 7130. *Atriplex*

[As I remember this bush was
about 3 ft. h. - Sept. 1917.]

No. 7131. *Oenothera multifluga* Wats.
This *oenothera* grew in a rocky

May 24, 1917.

place with rosette on the gravel.

No. 7132. *Eriogonum*
with 7131

No. 7133. *Helianthella argophylla* Gray.
Wash. 1½ to 2 feet h. Flowering
stalks from a dense thick
leafy caudex (branched shortly).

Very remarkable plant. [Only known
in Cal. from W. side Panamint-Mts.]. near
mouths of cañons.

- *Atriplex hymenelytra*. Panamint Valley

No. 7134. *Dalea mollis* Benth.
 Surprise Cañon. Branches horizontally
spreading.

- The following noted in Surprise Cañon:

- *Eucnide urens*, masses 8 ft. broad! fine fls.
Oenothera auriculata. *Baccharis sergiloides*.
Eriogonum inflatum. *Pentstemon*
Schottii, only a little. *Stanleya pinnata*.
Barrel Cactus.

A fine stand 6-7 ft. h. occurred on a
flat, about 4 acres area, some 3 miles
up the cañon.

Imp. G.

List of plants noted see p. 41.

No. 7135. *Oenothera cardiophylla*
Forr.

No. 7136.

This composite had sky-blue fls.

No. 7137. *Atriplex canescens*
New growth very Sueda-like.

No. 7138. *Cryptantha racemosa*
(Wats.) Greene.

No. 7139. *Solanum douglasii* Drum.
Same as *Solanum* 1 1/2 ft. h.

— *Datura* (No. 6946), a remarkable plant 8 ft. h. and 4 ft. broad, full of flowers!! *D. meteloides* DC.

— Ballarat consists of two dozen old buildings, adobe and shacks. For a mining camp it looks old and is old. Plainly it is now on its last legs. There is only one place of business, the "store and post-office", and the inhabitants are few. Undoubtedly I saw them all. They were very curious and frankly came out to take a close look whenever I began any botanical activity, such as running my driers. They were of all ages from the hopelessly degenerate aged miner to young chaps who had only started on that quest for hidden treasure in the desert which breeds a sort of insanity, a degeneracy of mind and body, a vile sort of dialect, and if possible vile personal habits in body and clothing.

Cont. It was at Ballarat that my canteen was stolen, taken out of my dunnage bag, while stowed in the store, during my trip up into Surprise Cañon. This cañon is truly a fine cañon and I regret that a portion of one afternoon did ^{only} not enable me to go further up.

— From Ballarat I went by motor stage across the slate Range* to Searles Lake. Called on S.W. Austin. See p. 55.

No. 7140. *Baileya multiradiata* var. *plexiradiata* Cov.
This composite grew on the moist flat near the lake

No. 7141. *Gilia mathewsii* Gray.
with no. 7140. = *Langloisia matthewsii* Greene.

No. 7142. *Eriogonum reniforme* Torr. & Griseb.
with no. 7140. Diffuse.

* See p. 63.

No. 7143. *Achyronychia cooperi* T. & G.
with no. 7140.

No. 7144. *Euphorbia ocellata* D. & H.
var. *arenicola* Johnston
Prostrate. with no. 7140.

No. 7145. *Goldemia nuttallii* Hook.
with no. 7140.

No. 7145a. *Goldemia palmeri* Gray.
with 7140.

No. 7146.
Bushy annual 1½ ft. h. with no. 7140.

No. 7147. = *Cryptantha*
Eremocarya micrantha Greene.
This boraginaceous annual grows on the moist alkaline flat. This is, ^{in the view of many} really a *Cryptantha*, but although familiar with *Cryptanthas* all my life, I did not recognize it as such in the field.

46 Searles Lake, San Bernardino Co. May 25.

no. 7148. *Cryptantha angustifolia* Greene.
with no. 7140. 1650 H.

no. 7149. *Abronia villosa* Wats.
with no. 7140.

no. 7150. *Eriogonum viridescens*
with no. 7140.

no. 7151. *Stillingia linearifolia* Wats.
with no. 7140. ~~*paniculata*~~ *paniculata* Wats.

no. 7152. *Astragalus coulteri* Bth.
Ascending stems. with no. 7140.

no. 7153. *Atriplex parryi* Wats.
with no. 7140.

no. 7154. *Gleomella obtusifolia* Torr.
with no. 7140. + Frem.

Bear Mountain, Kern Co., May 26, '17.
(Tahachapi Mts.).

Bear Mountain, plants noted: 47

- *Pinus ponderosa*, both uncolored
and yellow trunks.

- *Abies concolor*

- *Quercus Kelloggii*, winter condition!

- *Bercarpus paniculatus*

- *Fremontia californica* Torr.

Forms pygmy forest on NE.

slope, rather dense, 12 to
15 feet h.

- *Ceanothus cuneatus*, in full flower.

- *C. divaricatus* Nutt.

- *Quercus chrysolepis* Lehm

- *Q. wislizenii* A.D.C. Abundant.

- *Chenopodium californicum*

- *Asclepias californica* Nutt.

Nearly to the pines

- *Salvia columbaria* Bth.

- *Yucca whipplei*. Cattle eat young shoots.

- *Pinus sabiniana*.

- no. 7155. *Convolvulus fulcratus* Greene
var. *deltoideus* ^{as *gypsosus*} Greene trailing. Valley flat,
dry ground. Kelene. 3100 ft.
- no. 7156. *Trifolium ~~alobopifolium~~ ^{olivaceum} Greene*
With no. 7155. 3100 ft.
- no. 7157. *Pencedanum Vaseyi* C. & R.
With no. 7155 (*Lomatium vaseyi* C. & R.)
- no. 7158. *Plogiobothrys nothofolius*
Gray. With no. 7155. 3100 ft.
- no. 7159. *Cryptantha intermedia*
^{= *C. nevadensis* var. *rigida*}
Greene, var. ^{*rigida* Brand.} With no. 7155. 3100 ft.
- no. 7160. *Cryptantha flaccida* (Dougl.)
Greene. 3100 ft. With no. 7155.
- no. 7161. *Layia glandulosa* (Hook.) H. & A.
Rays white, 8 or 7 mostly, some-
times as few as 5. Midway
to summit, slopes, Bear mt.

- no. 7162. *Astragalus didymocarpus*
With 7155 H. & A.
- no. 7163. *Phacelia hispida* Gray, var.
cicutaria Nees. With 7155.
- no. 7164. *Thysanocarpus curvipes* Hook.
Lower slopes, Bear mt. Open woods.
3500 ft.
- no. 7165. *Leptosyne*
With no. 7164.
Fine sand-gravel drifts or rather
slides.
- sp. discarded *Microseris sylvatica*
no. 7166. (Benth.) Sch. Bip. ^{det. K. Chambers 1956}
Clear pure yellow flowers. Open
woods. Rather few and scat-
tered individuals. 3600 ft.

- No. 7167. *Ceanothus*? ^{*leucodermis Greene*}
~~*cuneatus Nutt.*~~

Common the lower ridges and on plateaus midway on the mountain. In full flower, their honey-sweet odor so heavy as to be almost sickening. Bark white 4000 ft.

- No. 7168. *Silene californica* Durand

Lower slopes, open woods.
3500 ft.

- No. 7169. *Birsium*

3 to 4 ft. h., stem branching at top into a panicle with comparatively few heads. Midway up mountain. 4000 ft.

May 26, 1917.

- No. 7170. *Gilia* ^{*capitata Sims ssp. abrotanifolia*}
~~*schilleraefolia Bth.*~~
(Nutt. ex Greene) V. Grant

Lower slopes of mountain.
= *G. staminea Greene.* 3700 ft.

- No. 7171. *Agoseris* (Discarded, insect damaged)

Lower slopes of mountain.
3700 ft.

- No. 7172. *Ceanothus cuneatus* Nutt.

Abundant on ridges and on plateaus midway of mountain. These round bushes on the ridge plateaus look like *Arctostaphylos glauca*, at a distance. 4000 ft.

- No. 7173.

Pure lemon-yellow flowers. Midway of mountain. Fine gravel slides. 4000 ft.

- No. 7174. *Viola* ^{*aurea ssp. mohavensis*}
~~*purpurea*~~ *Hell. var.*
grisea Jepson.

Higher slopes, open woods.
6000 ft.

52 Bear Mountain, Kern Co.

(Tahachapi Mts.)

- No. 7175. *Phacelia curvipes* Torr.
Upper slopes, near summit.

- No. 7176. *Sanicula nevadensis* Wats.
Upper slopes, near summit.

- No. 7177. *Balsamorhiza*
Upper slopes

= *Allophyllum gilioides* (Benth.) A. + V. Grant
(*lanthina* Jepson + Hoover)

- No. 7178. *Gilia gilioides* (Bth.) var. γ
Upper slopes. 5500 ft.

- No. 7179. ^{= *Microsteptis*} *Collinsia* (*Gilia gracilis* Hook.)
Upper slopes.

- No. 7180.
Upper slopes. But also occurs on
lower slopes.

May 26, 1917.

53

- No. 7181. *Mimulus* ^{*freemontii*} ~~*subcandens*~~ var.
^{*constrictus*} ~~*Vireoides* (Engelm.) Grant.~~ Del: A. S. G.
Upper slopes.

Spot on palate lower lip white;
otherwise like *M. Freemontii* of the
desert.

- No. 7182. *Linanthus nudatus* Greene.
~~Torr~~ Middle slopes

= ~~*L. brevicaulis* Greene!!~~ var. ~~*nash-*~~
~~*ianus* Jepson & Hoover~~

- No. 7183. *Glaucocystis*
Lower slopes.

- No. 7184. *Phacelia hispida* Gray,
var. *cicutaria* Mbr. Lower slope.
= *P. distans* Bth. acc. R. F. Hoover

- No. 7185. *Artemisia tridentata* ^{ssp. *eridaniata*}
Colonies about Keene.
Bushes 2 to 4 ft. h.

= *Allophyllum gilioides* (Benth.) A. + V. Grant
(*lanthina* Jepson & Hoover)

- No. 7186. *Gilia gilioides* (Bth.) var. γ
Flats west of Keene.

No. 7187. *Eschscholtzia californica* Cham. var. *crocea* Tpps.

Flats west of Keene.

Perfectly good *crocea*!

No. 7188. *Glyptostidium monan-*
drum Nutt. Lower slopes.

[Cont. from p. 38. Harrising Flat. From this large flat we run southward along a good road and enter a ^{shallow but close} defile called "The Narrows" which leads out into another valley, westerly (Nero Flat) where there are a few rather small-sized *Yucca brevifolia*. Then after following the wash westerly some distance we turn abruptly to the left and enter a side cañon leading (as a small lateral) south into Wildrose Cañon, a great cañon running east-west. See p. 38.

- S.W. Austin, who collected for years about Independence, is now stationed at Searles Lake and is president of one of the companies which is in control of the great potash works which have been developed there in recent years. We drove by auto over a causeway to the pumping plant near the center of the lake and then actually drove out on the lake itself! The salt crust is so heavy and thick as easily to support an auto, and the water is only a few inches deep.

Austin says this is the driest year he has ever experienced in the desert.

From Searles Lake (Trona) I went by train to Mohave and thence to Woodford (Keene P.O.)

in the Tehachapi Mts. This station is about the right altitude for good botanizing in the Tehachapis. For some years I had noticed in the little village of only a few houses, a sign "Room and Board", and I had long planned to stop off. The "Room and Board" is kept by Mrs. Martin. I soon found that I had run across the trail of Mrs. Brandege.

Mrs. Martin feels very kindly to Mrs. B. and says Mrs. B. has stopped with her for five or six years. According to Mrs. Martin the grounds at Berkeley were given the University by Mrs. B., who can, therefore, stop at the University as long as she likes. Mrs. Martin told Mrs. B. that God would bless her, but Mrs. B.

May 26, 1917.

promptly replied that there was no God. Mrs. B. never slept in a bed, says Mrs. Martin, but after arranging her plants in tissue paper, a work she did in the tiny front parlor, she went to sleep on the floor. Mrs. B. always carried a revolver to protect herself says Mrs. Martin*, — tho' this would almost seem a superfluity!

* Mrs. M. demonstrated with the faintest of her hands Mrs. B.'s facile and happy use of the revolver.

- Drove to Sacramento via Vacaville and back by the same route. The Buckeye and the Elderberry (*Sambucus glauca*) are now in full flower. About Vacaville and Laguna Valleys their flowering marks the fruition of the spring vegetation and the passage into the dry summer. — June 9-10 (Sat.-Sun.).

No. 7189. *Lathyrus* ^{vestitus ssp.} *bolanderi* Wats.
Stems erect, 1 to 2 ft. h. Deep
canyon side, below the "Big B."

- I have been asking Miss A. B. Waterman to collect in Bear Valley, San Bernardino Mts. She writes:
"And such a wonderful feeling that I have about you since I grabbed about on my ^{own} knees with newspapers and things and a high wind blowing!" *

It's really an art to change driers in the open in California but no one ever gave me credit for it before.

* Date of 10/8/1916.

No. 7190. *Polycarpon tetraphyllum* L.
Shell Mound, railway.
July 5

- Ever since a child I have had, thru talking with the pioneers and thru reading, a vivid mental picture of the great barrier, to the westward movement of men, of the Sierra Nevada. But never, until I stood on the Top of Telescope Peak did I obtain so impressive a picture of this great escarpment rising from the desert floor and barring the westward way. There it rose to the heights of Williamson and its snowy allies, 11,000 feet almost straight up from the floor of the desert. This distance is just the right point to view it. It is a gallery seat and not too far away, and yet far enough away to blot out minor unimportant topography, & to make the east-

side a wall rather than a slope. It strikes my imagination, from this viewpoint, that I see the whole of the Sierra range bounding the Great Basin on the west. There it comes, curving down from beyond University Peak, coming into distinct view out of the haze of the farther distance beyond Yosemite, culminating in Williamson, Whitney, and Sheep Mt., extending on down to Blanca and then curving slowly far westward to encircle the head of the San Joaquin! It is this curving line that helps to sustain the impression that one sees it all. And so one's imag-

May 24, 1917.

ination is gloated with the grandeur of this great wall rising as an unbroken barrier to close the way westward.

- Wild Rose Basin is a delightful surprise, especially the spot Wild Rose Spring, for one comes upon it so suddenly. The willows and more especially the fragrant flowers of the wild rose give it a most unusually choice and entrancing setting for the desert. There are here:

*Rumex crispus**Plantago ovata*" *lanceolata**Hordeum murinum**Baccharis sergiloides**Stiplex polycarpa**Trifolium repens*
(over)

Cont. -

Eriogonum Hermannii

Like a cushion plant
on the cliffs bordering
the wash of Wild Rose.

Eriogonum (red-brown) - No. 6498*Melilotus parviflora* ^{See p. 39} Desf.*Eucnide urens*

Mohavea breviflora - low
down in Wild Rose Wash
opposite Tuber Cañon.

[Cont. from p. 38]. The panorama of
the Wild Rose hills the cañon and the sensation of
it is most remarkable in the desert!

- Harrisburg Flat. A wild and
desolate plain, with dull
forbidding mountains about;
cold and misty while we
were there; and hardly any
sign of life except the
peculiar hopping flight of the
Bow Bird (which looks very

May 23, 1917.

much like a blackbird but is read-
ily distinguishable by its up &
down sliding motion), and the
little wood-train of Shoshone
Johnnie, packing wood from
the Panamint (Pitton) to Skidoo
mining camp where it sells at
\$22⁰⁰ per cord, moving slowly
but steadily across the flat-
northwards. There was no
Larrea mexicana on the flat.
The common *Atriplex* was prob.
A. canescens. - Cont. from p. 54.

- Slate Range. Noted:
Lepidium fremontii
Aster tortifolius

- S.W. Austin says: There is
finer botanizing on the Ubehebe
than in this region. I got an

onion there which is new.
 Arctostaphylos merriamii grows
 there!

— Surprise Cañon. McQuesten
 brought me down to Ballarat
 from Harrisburg Flat this
 morning, 30 mi. From Ballarat
 I walked up Surprise Cañon this
 afternoon. There was not enough
 time to do the job properly.
 On such a trip as this over
 the mesa one gets anew the
 experience of deceptive levels
 on the desert. Ballarat simply
 disappears as one walks over
 the "level" valley or level-
 tipped mesa and then appears
 again. A man or a rider
 will disappear similarly on
 the mesa. It is quite wonder-
 ful to train the eye to

May 24, 1917

survey the landscape closely as
 precaution against this deception.

[— *Erigeron* *heermannii*,

This species I observed in wild
 Rose Cañon, at Emigrant Spring,
 in Huanapai Cañon; and, as I
 remember, in Furnace Creek. Its
 closely-worn rounded tops abide
 in my memory. The previous pages
 make records of its occurrence
 in some degree. — W.L.J., Oct., 1918.]

— *Lythrum californicum* F. & G.
 Teratology. Fasciation of entire
 plant; total length 12 in. Plant
 forked at 2 1/2 in., one fork
 with two unequal forks. U.C.
 Herb. H. P. Chandler, Claremont,
 May 31, 1897.

not
p. 66
65th

- Potability of water in the desert.
C. Philips, L. M. Desert and
Hinterland of Algiers. pp. 184-5.
London. 1909. McDougall,
Geog. Rev. 3: 467. Jefferson,
Bull. Am. Geog. Soc. 47: 885.
Mendenhall, Desert Watering
Places, p. 15 (U.S. Geol. Sur., Water-
Supply Paper 224).

- *Elatine brachycarpa*: Walp. Gr.
Jeffson, Lake Palarctus, Davy. I find
the corolla always 3-merous, the
petals unequal! Stamens varying from
3 to 6. Sepals 3, unequal! sometimes
2. *Ranunculus*, Brandegee, has
the same 3-merous parts in
perianth and stamens (3). The
capsule is 3-valved, in *Ranunculus*
spms. 3 or 4-valved. In the
books *E. brachycarpa* is spoken of
as 2-merous, as also *E. americana*.
If they may be either 2 or 3-

No. 7191. *Sambucus maritima* Greene.
Shell mound, July 5, 1917.

- Cont. from p. 66. - merous, why not
4-merous? And in what essential
way different from *E. californica*?
I have only 1 spm. (Cuyamaca) and that
shows curved seeds, pedicled fls. &
some leaves long-petioled. I have seen
no spm. of *E. americana* from Cal. If
its fls. are regular as illustrated
in Britton, Ill. fl., that would be a
good point of difference. Long series
of fls. need to be microscopically
examined in the field. The Cuyamaca
spms. of *E. californica* has 4 sepals,
4 petals, both regular, 8 stamens
and 4-valved capsules. -
Dec. 13, 1919. See vol. 52, p. 121.

- *Scrophularia californica* Cham.
Teratology of fls. Phyllody of fl.
parts. - See Tracy 2469, Worangleton,
Humboldt Co.

The Chaparral, - its composition:

- 3 *Quercus dumosa* Nutt.
- 2 *Arctostaphylos* ~~can-~~
~~escens~~ *castan.*
- 1 *Adenostoma fasciculatum*
Pickeringia montana Nutt.
5. *Quercus wislizenii* var.
frutescens
4. *Rhus diversiloba* F. & G.

The above are the common species in order as listed.

There are also:

- Ceanothus cuneatus* Nutt.
" " *sarcocaulis* H. & A.

Asaulex californica,
as a shrub, follows
up the swales and
spreads out in a very
small fan at the
heads of gullies.

July 14, 1917.

- *Hesperomeles arbutifolia*
Fraxinus dipetala H. & A.

- *Alnus rhombifolia* occurs in the
deeper lower part of the cañon.
- *Quercus chrysolepis*, a large ^{tree} grows
in the upper part of the (deep)
cañon.

- No. 7192. *Iris macrosiphon* Torr.
In half open chaparral.
1500 ft.

70. Weldon Cañon, Vaca Mts. July 14.

No. 7193. *Hypericum concinnum*
^{Solano Co.}
^{Berth.}

No. 7194. ^{= Lepechinia}
Sphacelo calycina

No. 7195. *Eriophyllum*
Chaparral slope, in open.

No. 7196. *Arctostaphylos canescens* Eastw. Chaparral slope.

No. 7197. *Peucedanum macrocarpum*
Nutt. Summit of ridge, head
of Weldon Cañon. 2700 ft.

The fruits 10 lines long, remarkably long and slender (2 1/2 lines wide!).

No. 7198. *Arctostaphylos* ^{canescens} ~~manzanita~~ Parry. A round thicket on a little, otherwise bare, knoll, summit of ridge, head of Weldon Cañon.

Berkeley to Laws. - July 20-21, 1917. 71

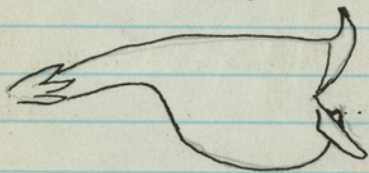
- Left Berkeley by Santa Fe at 9:30 am. The San Joaquin Valley very hot. Reached Lodi at 9:30; at 11:30 took the slow train to Oremy which we reached late the next morning. Train crowded with people going on fishing trip in eastern Sierras, so that the change to the narrow-gauge at Oremy very uncomfortable. At Laws after a wait of three hours McQuesten appeared accompanied by McLean of the U.S. Geol. Survey. Drove in the Ford up Silver Cañon to the camp at 6500 feet where were Grinnell, White and Shelton (from Univ. of Oregon), who is in charge of the zoology party in absence of Grinnell.

- No. 7199. *Pentstemon floridus* Bely.
Cor. pink-red, spreading horizontally or a little ascending, the upper side of the cor. straight, the lower side ^{tube} deeply curved. Lower lip: lobes subequal, deflexed but curving out a little, abruptly deflexed from the whitish ^{projected} ~~curving~~ rim of the throat. Upper lip erect or slightly tipped backward. Stamens glabrous. Sterile stamens essentially glabrous, only a few short glandular hairs on upper side at base. Petal glabrous save for a few similar hairs towards summit of ovary. Anthers versatile, left- to middle. Cont. p. 74.

- No. 7200. *Rubus cereum* Dougl.
Clumps 7 ft. h. many erect stems from base ($3/4$ to 1 in. diam. at base). Berries red, edible, abundant; chief food now of chipmunks and chickadees.
- No. 7201. *Elymus* ^{*cinereus* Scribn. & Merr.} ~~*condensatus* Presl~~
This grass grew in the cañon bottom, 5 to 6 ft. h.
- No. 7202. *Pentstemon bridgeii* Gray.
Cor. scarlet, spreading horizontally or drooping. Upper lip erect (continuous in a straight line) with tube; lower lip of 3 oblong divergent lobes, spreading from tube. Anthers cleft to middle, versatile. Stamens & pistil glab. Cañon bottom.

no. 7203. *Smilacina stellata* ^{Dr.}
Immature fruit with 3
black bands opposite parti-
tions, 3 spots at base altern-
ating or 3 narrow bands.
These markings give the
fruit a very different
aspect from that of Coast Range
plant. - But these ^(of this) fruits become
wholly black as they mature.
See fragments of stems bearing more
nearly ripe berries.

- Cont. from p. 72. *Pentstemon*
floridus T. Bdg.



margin of
throat on
lower side.

The bulge on the lower side of
cor. is quite remarkable. The
lobes of the lips are cleft to
the throat line.

No. 7204. not used.

[No. 7205. *Parashia glandulosa* Curran.
Bark like a peach tree, on
old trunks becoming red-
shreddy. 3-4 ft. h., spreading,
fls. twice as broad. See p.
81.]

No. 7205. *Mirabilis foebelii* Greene.
This mycoginaceous plant is
2 to 2½ feet high and 2 to 3 or
4 ft. broad. It presents a very luxur-
iant "well-fed" appearance.
Cañon bottom.

No. 7206. *Petalonyx* ^{*nitidus* Wats.} ~~*thorberi* Gray~~
Cañon bottom. Has *P. nitidus* Wats.
of S. Mex. been found in Cal? [This no.
is *P. nitidus* Wats!!]

No. 7207. *Senecio multilobatus* T. & G.
Cañon bottom.

No. 7208. *Iris missouriensis*
Cañon bottom.

No. 7209. *Astragalus shockleyi* Jones
Pods fleshy, very fat or cylindric
in cross-section. Leaflets pinnate,
very remote, cinereous beneath.
Stems many from a perennial
root, strictly herbaceous, $1\frac{1}{2}$ to
2 ft. h. (= *A. serenoi* Sheld.).

No. 7210. *Galium*
Numerous stems, forming a
tufted plant 6 to 8 in. h.

No. 7211. *Glycyrrhiza lepidota*
Pursh.
Cañon bottom.

No. 7212. *Campanula glauca* Wats.
This crucifer is a perennial

and grows on rocky slopes, several
stems from the root. = *Streptan-
thus glauca* Jepson.

No. 7213. *Holodiscus discolor* Maxim.
6 ft. h., very glaucous. ^{var. *microphylla* Jepson.}
Cañon bottom.

No. 7214. *Epipactis gigantea* Dougl.
Cañon bottom, springy bank.

No. 7215. *Betula occidentalis* Hook.
~~*fontinalis* Sarg.~~
Cañon bottom, 10 to 12 ft. h.

No. 7216. *Habenaria dilatata* var. *leucostachya*
Cañon bottom, springy bank Wats.

No. 7217. *Birsium*
Cañon bottom. Entire stem taken
but the leafy rosette at base
left. Cañon bottom. Fls. red.

No. 7218. *Juniperus*, ^{*setocephala* Hitchc.} ~~*utahensis* Lemm.~~
dry slopes.

No. 7219. *Laphamia megacephala* ^{Hutch.}
This Composite has numerous
stems (strictly herbaceous) from
a very thick tap root. Cañon bottom.

No. 7220. *Lepidospartum lasiguamatum* (Gray) ^{Gray}
This Composite, very bushy +
straight-stemmed, 4 ft. h. or
over 5, I take to be a *Tetradymia*, tho. it has no flowers
nor fruit. Cañon bottom. Leaves
terete. — No. 7220 a collected Aug. 4

No. 7221. *Caulanthus glaucus* Wats.
This crucifer grew in a rocky
place near cañon bottom = *Stroph-*
anthus glaucus Jepson.

— We were speaking of the general
failure of so many persons who
collect to label spms. Shelton re-
marked that the spms. of ^{Hos.} Howell
as seen in the Oregon Univ. Herb.
were unusually well labeled by
Howell, and often with pages of
field notes in addition. I was
glad to know this because Howell
worked under great difficulties and
it is all the more to his credit. H. M.
Hall recently reported on Lemmon's
Herbarium and found about 60%
the spms. useless on account of total
lack of labeling. Labeling thoroughly
is one sign of a careful botanical
worker, for no monographic or
special work can be done upon
unlabeled spms. with any satisfactory
result.

— Grinnell says that a bird was
named for E. Samuels of Sonoma

Co. by Baird, the ornithologist
Ammodramus samuelis Baird
 (*Melospiza melodia samuelis*)

Type loc. Petaluma, Samuels
 Brewer, in ^{Journ.} Bot. Soc. Nat. Hist.
 describes bird's eggs collected in
 Sonoma by Samuels. This
 S. Samuels I have never been
 able to trace farther than
 the note by Gray prefaced to the
 List of Plants collected in Sonoma
 by S. Samuels and pub. by
 Gray in Journ. Bot. Soc. Nat. Hist.

— [*Argemone mexicana* grows
 in the Owens River Valley, Miss
 Alameda Nordyke, Bot. 104, who
 lives at Bishop, says that bees
 are killed by the flowers of this
 species. The people of the valley
 say that it is the opium of the
 flower.

✓ No. 7222. *Cowania stansburiana*
 Torr. Cañon walls. 4-5 ft. h.
 = *C. mexicana* Don var. *stansburiana* Jepson.

✓ No. 7223.

This composite has numerous
 stems from a perennial, ^{woody} crown,
 but the stems are herbaceous.
 Cañon bottom.

✓ No. 7224. *Cercocarpus ledifolius*
 Nutt. Group 8 to 12 ft. h.
 Cañon bottom, but doubtless
 also on slopes. The calyx cup
 dehisces from the calyx tube and is
 carried up on the growing style.

✓ No. 7225. *Purshia glandulosa* ^{Curran}
 1 to 2 or 3 ft. h. and twice as
 broad, spreading widely over the
 ground. See p. 75.

No. 7226. *Dymphoricarpus oreophilus*

✓ No. 7227. *Cirsium*

This thistle grows 4 to 8 ft. h., paniculately branching at the top, a rosette of 3 leaves at bottom in addition to the cauline ones. The single leaves taken are basal ones. Cañon bottom.

✓ No. 7228. *Ranunculus cym-
balaria* Pursh.
By streamlet.

✓ No. 7229. *Potentilla hennis* Greene
Petals oval, smaller than the
calyx-lobes. Stamens 10.
By streamlet.

✓ No. 7230. *Lappula redouckii* v. ^{greenei}
Back of achenes bordered with a
row of long hooked spines.
Cor. white, very small.

✓ No. 7231. *Lepidium* ^{densiflorum} ~~apetalum~~ ^{Schrad.}
1. *L. virginicum* var. *texanum*
(Buckley). Pet. none; stamens
2. = *L. densiflorum* Schrad. of Fl. Cal.
glanduliferum Jepson.

✓ No. 7232. *Ribes veltinum* var. x
3 to 4 or 5 ft. h., mostly broader,
very densely and intricately
branched. Leaves all small.
Excessively thorny. Berries
small, greenish-translucent,
not markedly translucent but
a little so.

- Plants observed at camp at 6500 ft
Mimulus cardinalis
Atriplex confertifolia
Ephedra nevadensis, same
 as in lower part of Huan-
 ahpali Cañon.

Chenopodium ambrosioides.

Chenopodium album.

Melilotus alba.

Medicago sativa.

Alfalfa occurs at many
 points in a side cañon
 running south east into the
 mts

Chenopodium murale.

Rumex crispus.

Notice the large number of
 introduced plants. *Chenopodium*
album follows the sheep feeding
 corals everywhere.

Mimulus lewisianus

- *Pinus aristata* Engelm.

Dark of trunk varying from light
 reddish brown to dark brown, lightly
 fissured longitudinally and also
 transversely, making rather narrow
 plates but mostly of irregular defini-
 tion as to shape. General surface
 more or less finely scaly. 30 to 45
 ft. h. Cones hanging, often on
 pendulous branchlets, at least spread-
 ing, and almost always on the
 under side of the branch. - White
 Mts.

No. 2233. *Purshia tridentata*

Low and spreading, with the
 habit of *Ceanothus cordulatus*
 which ^{it flows} is however a very dif. color.
Purshia occurs in the open pine
 forest (*Pinus aristata*) and in
 a way replaces *Ceanothus cordu-*
latus which one found in sim-
 ilar situations in the Panamint.
 - Summit-Trail, White Mts.

✓ No. 7234. ~~Linanthus~~ ^{Linanthus} ~~flavus~~ ^{nuttallii} Gray.

Common in Sagebrush formation. See p. 89. *Siphonella nuttallii* Hel.

✓ No. 7235. *Eriogonum* ^{ovalifolium} ~~nuttallii~~ var. *nivale*
Summit Trail.

✓ No. 7236. *Erigeron clokeyi* Cronq.
Rays lavender. Open pine forest
and in Sagebrush formation

✓ No. 7237. *Eriogonum umbellatum* var. ^{aridum}
Fls. pale cream-color. Sagebrush
formation. Caudex loosely bran-
ched, the small rosettes at end. See p. 90.

✓ No. 7238. *Silene*

Inyo Co.

Scales 2, freely lacinate (4 or 5-
cleft each), conspicuous, half as long
as the petal blades, these 4-cleft
the lateral scarcely narrower;
corolla dull whitish, the back
of the petals often dull greenish.
Correction, from fresh material:
Petal blades cleft into 4 equal
narrow or linear lobes, the lobes
all obtus, the strongly lacinate
scales nearly $\frac{1}{3}$ as long as blade.
Blades reddish brown or pinkish
on back

✓ No. 7239. *Ericameria cuneata*
Silver Cañon.

✓ No. 7240. *Mirabilis proebellii* (Behr.) ^{Greene}
Fls. pink-red, large & showy.
Mt. slope, 7500 ft.

88 Summit-Trail, White Mts. 9500 to 10,700 ft.
Inyo Co.

Artemisia tridentata Association

- *Artemisia tridentata*, 1 1/2 to 3 ft. h. - the dominant sp.
- *Gilia* (no. 7234)
- *Silene* (no. 7238)
- *Calochortus excavatus* (no. 7242)
- *Eriogonum* (no. 7237).
- *Eriogonum* (no. 7235).
- (no. 7236).
- (no. 7243)
- *Lupinus* (no. 7245)
- *Arenaria* (no. 7242)
very common

Silver Canyon to
Big Prospector Mtn.

July 23, 1917.

89

- *Gilia* (no. 7234) *metallii* Gray.

very common. This occurs in a wide range of localities or formations: *Artemisia tridentata* association; Boulder-bound pine slope, but rare; meadow flats or gentle sand slopes about meadows. Here coloring the slopes white for hundreds of yards or more. It is the most common thing in the region after Sagebrush.

- *Gilia* (no. 7246)

- *Astragalus* (no. 7250)

- *Castilleja* (no. 7251).

- (no. 7252)

- *Trifolium* (no. 7254)

- *Eriogonum* (no. 7255).

- The above were all noted between the point where the timber ends on the Summit-Trail and Big Prospector Meadows, in open Sagebrush country.

- No. 7241. *Chamaebatiaria* mill.
folium.

Mt. side, 8000 ft.

- Cont. no. 7231. Fls. greenish rather than cream-color. The caudex is really stoloniferous, i.e. producing short horizontal stolons.

- No. 7247. *Eriogonum caespitosum* Nutt.
Fls. greenish-yellow. Plants in
open Artemisia tridentata brush
in flat at summit of Summit
Trail near Big Prospector Mdw.
Plants forming broad flat ex-
tensions on the otherwise nearly bare
spaces between the low bushes
of Sagebrush.

- No. 7242a. *Arenaria kingii* var. *glabrescens*
 (Wats.) ^{Inquire}
 Very common in the Sagebrush
 formation

= *S. hystrix* (Nutt.) J.G. Smith

- No. 7243. *Sitanion californicum* J.J. Sm.
This grass grew in tufts in the
Sagebrush formation. Det. A. S. H.

- No. 7243a. *Stipa pinetorum* Jones
(Mixed with above specimen)

- No. 7244. *Koeleria cristata* ^(L) Pers.
This grass grew in compact tufts
in the Sagebrush formation.
Det. A. S. H.

- No. 7245. *Lupinus laxiflorus* Dougl.
Fls. blue. This also occurred as high
as 11,000 ft. See p. 142.

- No. 7246. *Gilia pungens* Nutt.
Common in the Sagebrush
formation. = *Leptodactylon pungens*
Jepson.

Nuttallii Torr. G.

- No. 7247. *Calochortis* excar-
atus Greene. Perianth clear
white. 9500 ft. Eye yellow, i.e. base
of inner perianth segments yellow
but with purple markings. Gland
situated on this yellow field, composed
of short closely packed hairs of
equal length and without enclosing
membrane. Anthers wine-purple.
Petals broadly cuneate, somewhat apica-
late at apex. *Antennaria tridentata* assoc.
No. 7248. *Crepis intermedia*? ^{See p. 100}

This cichoriaceous plant grew
in the Sagebrush formation.
Bright yellow fls.

- No. 7249. *Castilleja linariaefolia* Bth.
Sagebrush formation (*Antennaria*
tridentata).
- No. 7250. *Astragalus lentiginosus*
var. *semotus* ^{Jepson} Peds greenish-yellow,
pink - mottled on one side. Stems
reclining or diffuse. Sagebrush
formation.
- No. 7251. *Castilleja pilosus* (Wats.)
Spikes very greenish;
bracts brownish-tinted, the margins
white-edged. Sagebrush formation.
- No. 7252. *Agoseris* cf. *glauca*
Ligules yellow, with pink-lav-
ender backs. Sagebrush formation

23 July.

- No. 7253. *Astragalus opharus*
10,000 ft.
mats. Stems diffuse or
ascending. Pods greenish,
pink-mottled.

- No. 7254. *Trifolium monense* Greene.
Forming close mats on the ground
in the Sagebrush formation
Fls. pink. 10,300 ft.

- No. 7255. *Eriogonum ovalifolium* Nutt.
var. *ovalifolium*
Scapes slender, coming
from the edges of the small dense
cushions, as if "proliferous".
Fls. greenish-yellow white.
Sagebrush formation, summit of
Summit Trail. 10,300 ft.

- No. 7256. *Eriogonum gracilipes*
1 Flat below Campito
Peak. Fls. whitish, aging pink.
10,500 ft.

- No. 7257. *Haplopappus acutis*
~~Sedeto~~ (Nutt.) Gray
Flat below Campito
Peak. Both this and the preced-
ing cushion plants grew on sandy
soil of the level meadow. 10,500 ft.

- No. 7258. *Ipomopsis congesta* (Hook.) V. Grant
~~Julia~~
Wonderfully like a *Potentilla* in
habit and aspect. Cor. white.
Flat below Campito Peak. 10,500 ft.

^{near} Big Prospector Mdw., White Mts.
Camp at N. Fork Crooked Creek, 10200 ft.
No. 7259. *Streptanthus*

Fls. dark purple. Petals narrow,
almost subulate. Summit
trail in Sagebrush formation.

No. 7260. *Heuchera* ^{*duranii* Baeig.} ~~*noemexicana*~~ ^{Wheelock}

Calyx bowl-shaped, its lobes triangular, the stamens at this base, short,
turned to center of tube. Petals
white, oval, obtuse, very small. Style
2; ovary embedded in the yellowish
disk. Rocky slopes. Occurs also
on County Line Hill at 11,000 ft.

No. 7261. *Draba* ^{*nemorosa*} ~~*curvisfolia* Nutt.~~ var. *californica*
^{Jepson.}
Rocky slopes. Corolla white!

No. 7262. *Mimulus* ^{ex. a. l. g.} *suksdorfii* Gray.
Cor. yellow, the lips subequal. All
lobes of the

Mono Co. July 24, 1917.

lobes notched, those of upper lip more
sharply. middle lobe of lower lip only
slightly larger than the lateral.
Calyx red, truncate, its lobes very
short and ^{↑ as if} broad, and truncatish.
- moist spots in pleural vds.
uniformly very dwarf.

No. 7263. *Calyptridium roseum* Wats.
Calyx: sepals 2; lower sepal very
broad, broader than long, rounded,
cordate at base; upper sepal much
narrowed, horned at apex, included by
the lower sepal. Petals 2, thin, small,
much shorter than the sepals.
Stamen 1. Ovary 1-celled, the ovule
on funiculi which arise from the
base of the cavity. Prostrate!

- Near the camp in Silver Lake
 Cañon about 50 dragon flies
 gathered at a point where winged
 ants were emerging from under
 a brush-pile where presumably was
 their hole. As fast as the ants
 appeared, one by one, the dragon
 flies swooped down upon them.
 A dragon fly in its pouncing
 course never failed to capture
 its ant. This ant-colony was
 totally devoured and extin-
 guished in about half-an-hour.

- Three marmots (ground-hogs)
^{by V. di Skelton}
 were brought into camp this
 morning by Grinnell. They were
 very fat, a male, a female and
 a young one. This is now
 their fattening period and the
 layer of fat inside the skin
 is already very thick. They are
 strict vegetarians, living upon

the meadow grasses and roots. They
 do not wander for food more
 than 100 yards or so from their
 holes; they make their homes in the
 rock-piles, choosing a retreat
 between two slabs of rock where
 they cannot be dug out by bear
 or coyote.

- It is raining a good deal today
 in the way of light showers
 which interfere with plant dry-
 ing. I take a satisfaction in
 making good specimens of a
 permanent kind; good for my own
 use, permanent because if well
 made they can be mounted and
 preserved for the use of generations
 of botanists. A well made spec. may
 be used by a botanist 200 years
 from now and such a thought
 ought to give one satisfaction in
 the making of permanent spec-

imens which is really a lot of work.

- The one-eyed Sheepman says:

"We call that Mountain Tea*. The French sheepherders uniformly use it for tea. There isn't much brush (for sheep) in these mountains. Bitter-brush is one. Then down below there is Cottontail Brush; white Salt-brush, Black Saltbrush."

* = Monardella (No. 7286).

[- *Calochortus excavatus* Greene. Cont. from p. 92, No. 7247. The glands are very compact, oval and surrounded by a membrane! Perhaps the statement on p. 92 was due to imperfect observation in the field or to a case where the threads or hairs were distinct. Rarely are there any glands with scattered hairs just outside or around the gland.

— Nov. 27, 1917. Berkeley.]

No. 7264. *Polentilla biennis* Greene.

Moist-bank of ant. streamlet.
Stamens 10. Petals obovate, not broad, sometimes broadly oblong.

No. 7265. *Arnica*

Rays 15, 16, 16, 16, 17, 16. Herbage gray. Borders of wet meadows.
10,100 ft.

No. 7266. *Mimulus primuloides* ^{Benth.}
Offsetting by stolons which produce at end a rosette of leaves. Wet meadow. 10,100 ft.

No. 7267. *Girardinia*

Heads in the rosette 6 to 53! The heads do not all show, especially in the larger clusters, the lower ones being axillary to the leaves and more or less hidden beneath the upper leaves.

Cont. - Moist meadows

- The sheep are here in flocks, each with its shepherd, French Basques. These Basques are usually not interested in the country. One was questioned by McLean. He had no interest in topography, geology, or plants. Said he: "I keep my sheep, I know my meadow and the trail. That is all I want." How different is our party: Grinnell, White, Shelton, McLean and myself, all of Anglo-Saxon descent.

Beauv.

No. 7267a. *Deschampsia caespitosa*

This grass grew in the moist meadows.

No. 7268. *Agoseris alpestris*

This Cichoriaceous plant grows in the sandy meadows.

Gray

No. 7269. *Haplopappus apargioides*

This Composite grows in the sandy meadows. Rays yellow.

No. 7270. *Erigeron lonchophyllus* Hook.

Rays pink, numerous, very short and small. Heads short-cylindric, thick, not narrow. The pressure even of the collecting frame destroys the natural shape of the heads. Sandy flats.

No. 7271. *Carex douglasii* Boott.

det. K. K. M.

This *Carex* grew on the sandy borders of moist meadows.

No. 7272. *Ranunculus cymbalaria*
Pursh. Moist meadow.

No. 7273. *Deschampsia caespitosa*,
Beauv. This grass grows in heavy tussocks
in wet meadows. Det. A. S. H.

No. 7274. *Trifolium monanthum*
Gray. This clover grows in
wet meadows, very flat on
ground, and then forming
dense mats. Flo. white.

No. 7275. *Naua densum* Lemmon.
Stems few, radiating from the crown
of the root, and flat on the
ground. The root crown bears a
single flower which matures
before the rest. This *Naua* grew
on sandy flats. See p. 105.

No. 7276. *Muhlenbergia squarrosa* Rydb.
= M. Richardsonis (Trin.) Rydb.

This grass forms dense mats which
are mostly small and somewhat
scattered. It is the most important
grass for sheep in these mountains.
Cropped down, it responds quickly.
Hill slopes and flats. Det. A. S. H.

Cont. No. 7275. Stems usually 3
radiating equally if there is room.
If not the three may occupy only
180°, or the stems in such case
may be only 2, or if the plants
are much crowded there may be
only 1 stem.

- No. 7277. *Erigeron compositus* var. ^{10,500 ft.} *glaberrimus* Macom.
Rayless. Heads bowl-shaped in
flower. Rocky slope. N. Fork Crooked
Creek. 10,300 ft.

- No. 7278. *Arabis Lemmonii* Wats.
Rocky slope. N. Fork Crooked
Creek. 10,300 ft.

- No. 7279.
Cleft under boulder, rocky slope.
N. Fork Crooked Creek. 10,300 ft.

- No. 7280. *Astragalus lentiginosus* var.
semotus Jepsen.
Fruits resting on ground, leaves
rect! Rocky hillslope. 11,000 ft.
Slope Campito Peak.

- No. 7281. *Peucedanum mohavense* ^{C. & R.}
Rocky hillslope, 11,000 ft. Slope Cam-
pito Peak.

- No. 7282. ^{*Ipomopsis*} *Fillea longesta* (Hook.) V. Grant
Hillslope, in *Artemisia tri-*
dentata formation. 11,000 ft.
slope Campito Peak.

- No. 7283. *Haplopappus suffruticosus* (Nutt.) Gray
(det. R. B. Bailey 2/24/64)
Low bush, heavily odorous.

Rocky hillslope. Rays few. 10,500 ft.
Common over all the higher mountains, but
not yet in flower or scarcely

- No. 7284. *Poa* ~~*sandwigen* Vasey~~ ^{*scaberrima* (Thunb.) Benth & Hook}
This grass grew in heavy tufts.
Flat at base of Campito Peak.
Det. A. S. H. 10,500 ft.

- No. 7285. (Discarded, insect damaged)
Rays, 13, 12, golden yellow.
Rocky hillslope. 11,000 feet.

- No. 7286. *Monardella odoratissima*
Bth. ^{ssp. *glauca*} Corollas lavender, Rocky
rift. Odor very heavy. 10,700 ft.
See p. 100.

- No. 7287. *Pentstemon confertus*
Doug. Hillslope, 11,000 feet.
= *P. heterodoxus* Gray.

10,500 ft

No. 7288. *Pentstemon glaber* Pursh.

Sandy flat below

Campito Peak. 10,200 ft

No. 7289. *Phacelia frigida* Jepson.

Sandy flat below

Campito Peak. 10,200 ft.

No. 7290. *Oreocarya abortiva* Greene
= *Cryptantha jamesii* var. *abortiva*This borage grew with no.
7289.No. 7291 *agoseris* (Discarded, insect
damaged)This ichoriaceous plant
grew in a sandy wash
below Campito Peak. 10,200
ft.No. 7292. *Fritillaria pinetorum*Davidson. Note the horns on
the lower part of the capsule
wings. This is the best mark
of Davidson's species. Sandy
wash below Campito Peak. 10,200
ft.No. 7293. *Senecio* ^{*intergerimus* Nutt.}
var. *major* (Gray) Cronq.
Sandy wash, with 7292
10,200 ft.No. 7294. *Stipa comata* var. *inter-*
media. This and the next two
grasses grew with 7293.
Det. A. S. H.No. 7295. *Sitanion californi-*
cum J. G. Smith.
= *S. hystrix* (Nutt.) J. G. Smith

No. 7296.

No. 7297. *Eriogonum*
ovalifolium var. *ovalifolium* Rocky slope.
10,300 ft

No. 7298. *Calyptridium* ^{*spraguei umbellata* Torr.}
Sandy wash, below Campito
Peak. 10,000 ft.

No. 7299.

Sandy flat. 10,000 ft.

No. 7300. *Arabis Lemmonii* Wats.
Flowers blue-purple.* *Stizans*
transversely elliptic. Boulder-
stream slope amongst *Pinus*
flexilis. N. Fork Crooked Creek.
* better light-purple. 10,300 ft.

- There is no cry quite so plaintive
as the moan of a lost dog. The
shepherds have been taking out the
spring lambs from the flocks at the
corrals here. After they had left with
their flocks, in various directions, a dog
came back to the corrals trying to pick
up the scent of his master. He seemed
to fail as he went mournfully
about and stopped, lifted his head
to the skies and wailed. After a
while he picked up the trail and
I watched him follow the circling hills
towards the summit for some time.
Along a high round summit - I could
hear the distant bleat of the sheep,
and a shepherd appeared on the
clear evening skyline passing toward
the ridge of Big Prospecter Mts. As
he went down the ridge he began to
run, showing clearly that no dog

was with him. Shortly the dog appeared, silhouetted on the skyline and eagerly following the trail by scent. He seemed near enough to see the man but he kept his nose to the ground. It is wonderful to what small degree dogs of the mountains depend on vision. I have known them to get very near wild animals they were following by scent without seeing them.

var. *implexus*
 No. 7301. *Astragalus kentrophyta* Gray
~~= *Kentrophyta tagatoides* Rydb.~~
 Corolla: banner pale purple,
 the white wings shorter, the keel
 purple-tipped, shorter still. Perfectly
 prostrate! Flower solitary! Looks
 at first glance like the one-
 flowered prostrate clover, *Trifolium*.
 Campito Peak. 11,300 ft.
(monanthum.)

No. 7302. *Montia chamissoi* Dur.
 & Jac. See p. 115. Meadow streamlet. Cor.
 white. Petals 5. In glancing over
 hundreds of flowers I noticed
 only one with 6 petals. Stamens
 5. Stigmas 3. Anthers deep
 pink. Campito Mdw. All
 our wet parts of mdw. sheep do
 not touch it; so it will persist.
 10,800 ft. See p. 113.

No. 7303. *Daba*

Fls. yellow. Moist slopes.
 Campito Mdw. 10,800 ft. Dupl. 7333

11,500 ft.

- No. 7304. *Mimulus stamineus* Grant. Det. A.S.G.
 Rocky gravelly slope on border mdw.
 Cor. pale red, throat border of
 upper lip red purple, similar
 colored markings on lower lip,
 2 yellow bands from palate
 down into throat, these purple-
 dotted. Abundant. Corolla-
 lobes subquadrangular, or
 rounded. = *M. nanus* H. & A.

- No 7305. *Mimulus ^{ined.} deraeus* Grant. Det. A.S.G.
 Cor. yellow, its lobes
 similar in shape and size
 A channel ^{or groove} runs from throat out
 into the base of each lobe,
 this channel colored brown.
 Cor. lobes transversely oblong.
 with 7304.

- No. 7306. *Arabis*

Flowers white. Cropped
 by sheep. with 7304.

- leont. 7302. Ends of roots forming
 tubers freely.

(*L. var. ovium* Crum.)

- No. 7307. *Potentilla pennsylvanica*

Mdw. base Sheep Mt. Stamens 15, 10, 15.

11, 13, 16, 13. Petals yellow, ^{round-} ob-
 ovate, sometimes a little

retuse but rarely, mostly very obtuse,
 or truncatish. Flowers with exact petals, as if
 not opening fully, or giving that suggestion.

— I come now to the high mds.
 near Sheep Mt., untouched this year
 by the sheep. Close map of
 Trifolium (no. 7331)

heavily flowering; stamens spaces
 of *Mentia* (no. 7308)

its flowers cheek by jowl with
 the flowers of Trifolium (no. 7336)

the plants of which are very heavily matted. Also *Mimulus prinuloides*.

Potentilla (no. 7307)

and various sedges and grasses.

No. 7308. *Antennaria* (*Lewisia*) *nevadensis* (Gray) Roth.

	Petals	Stamens
No. 1.	7	6
No. 2	7	10
No. 3	7	8
No. 4	8	7
No. 5	8	8

Moist meadow near Sheep Mt.
Corolla red (pink). 11,400 ft.

See p. 148.

No. 7309. *Gymnostera minuscula* ^{Jepson.}
Sandy wash, Big Prospector Adv.
Flowering stage of 7326. Mono Co.

No. 7310. *Pibes ceruum* Dougl.

Sheep Mt. 2 1/2 ft. h., 5 ft. broad.

11,800 ft. Mono Co.

No. 7311.

(13, 13, 11, 13)
Nays 13, 16, 19, 14. Paleae 8, 6, 5, 8, 6, 6.

Sheep Mt. Paleae ovate, crenulate to wards apex. Note one plant fasciated. Mono Co.

= *D. oligosperma* Hook.
No. 7312. *Draba glacialis* Adams.

Fls. yellow. Foliage forming dense carpets of a few inches square high rocky slopes, Sheep Mt. Pet. reflex to truncatish, obovate. 12,300 ft. Mono Co.

No. 7313. *Pentstemon confertus* Dougl.
= *P. heterodoxus* r. Fls. purple, the tube gray

red-purple, the upper portion or limb tending to be blue-purple. Flowering stems arising from a loose leafy mat. 12,100 ft. Sheep Mt.

- No. 7314. *Potentilla breweri* ^{11,500 to 12,300 ft. Wats.}

Sheep Mt. Petals yellow, broadly ovate or obcordate, ^{an orange spot at base,} notched or retuse at summit. Stamens 20, 18, 20, 20.

High rocky slope. Petals 3 lines long. 12,000 ft. = *P. pseudosericea* Rydb. var. *grandiflora* Wolf.

- No. 7315. *Artemisia michauxiana* Besser
High rocky slope Sheep Mt.
12,200 ft.

- No. 7316. *Poa* ^{*rupicola* Nash. A.S.H.} ~~*hansenii* Scribn. Det.~~

This grass grew in small scattered bunches or tufts high on the rocky slope Sheep Mt. 12,200 ft.

7316A (with *Koeleria cristata* (L.) Pers. above specimen)

- No. 7317. *Koeleria cristata* (L.) Pers. ^{*crispata* (L.) Pers. (det. Beecher Crampton, Nov. 13, 1975)}
with 7316. Spikes of this grass reddish-brown. Same habit as 7316.

Det A.S.H.

- No. 7318. *Astragalus*
Oxytropis viacida Nutt.

Fls. white, the wings shorter than the banner, the keel shorter than the wings. Herbage very glandular and somewhat shining. Rare. High rocky slope Sheep Mt. 12,200 ft.

- No. 7319. *Potentilla breweri* Wats. = *P. pseudosericea* Rydb. Leaves silvery-canescens. Stamens 18, 15, 15, 13, 20. Petals yellow, obovate. High rocky slope. Sheep Mt. Stamens 20, 20. 12,200 ft.

- No. 7320. *Bastillea pilosa* (Wats.) Rydb. var. *monensis* Jepson. Lower lip of 3 slender recurved lobes, almost equalling the galea in length!!, white, pinkish at tip. Calyx lobes slender, equal, pink-tipped. Cor. dark red. Sacs green-banded transversely across top below "teeth". Stigma black, capitate. Frequent on the high rocky slopes of Sheep Mt. 12,200 feet.

120 Sheep Mt., White Mts.

No. 7321. *Eriogonum ovalifolium* Nutt.
var. *nivale*

Bushes very close and even, forming flat surfaces a few inches to several inches square.

Perianth white, pinkish in bud.

High rocky slopes. 12,150 ft.

No. 7322. *Draba breweri* Wats.

Fls. white. 12,000 ft.

No. 7323. *Eriogonum gracilipes*

Forming close dense even mats 4 to 8 in. across. Fls. red.

High rocky slopes. 12,100 ft.

No. 7324. *Ivesialycopodioides* Gray ssp. *megalopetala* (Rydb.) Keck
Potentilla gordonii Greene

var. *megalopetala* Greene. Stamens 5. Petals round-ovate, erose at apex, sometimes apiculate, yellow. Carpels few

Mono Co. July 27, 1917.

121

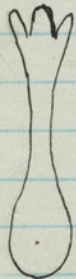
(8 in one fl.). Stamens inserted on the margin of a glandular disk, the center of disk surrounding carpels hairy. High rocky slopes. Petals $1\frac{1}{2}$ lines long. 12,100 ft. See p. 148.

= *P. covillei* E. Nels.

No. 7325. *Phlox douglasii* Hook. var.

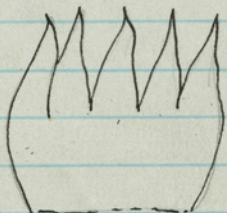
covillei Jepson. Cor. pure white, limb 8-line broad; stamens inserted high on tube unequally. Cor.-tube with a pubescent band just above ovary, not a heavy band. Forming dense even mats 2 to 8 in. broad, the flowers, each solitary and terminal on its short stem, rising to an equal height above the mat. Common on high rocky slopes. 12,300 ft. See p. 148.

- No. 7326. *Gymnossteris minuscula* ^{n. sp.} Jepson
 Anthers 5, sessile at mouth of tube.
 Cor. yellow, its lobes very short. Ovary
 elliptic in outline. Style 3-cleft to

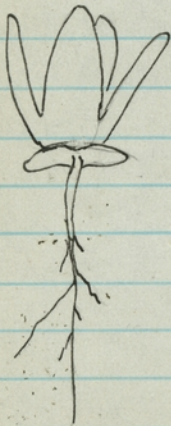


Corolla.

middle or a little
 below



Calyx
 spread
 open
 from
 3-flowered
 involucre.



= Invol. of 4 bracts con-
 nate at base and en-
 closing a cluster of 3
 flowers, subtended by
 a pair of leaves
 which are connate-
 perfoliate.

Corolla really white with
 a somewhat yellowish center, or fading
 yellowish.

where there is only one fl. the invol.
 lobes are usually narrower, and
 the pair of leaves are set some
 distance below, showing a distinct
 internode; but again the pair of
 leaves may approximate the invol.
 In my material the flowers are
 usually one. 11,800 ft.

See 7309.

- The Mountain Blue Birds are abroad
 on the slopes today.

- No. 7327. *Antennaria*

High rocky flat. 11,800 ft.

- No. 7328. *Antennaria*
 with 7327.

- No. 7329. *Senecio.* ^{integerrimus Nutt. var.}
^{major (Gray) Cronq.}

Rays yellow, 8, 6, 4, 7, 8, 6, 9.
 High swales. 11,800 ft.

No. 7330.

This composite has few, reclining or ascending branches. Rays many. Stems few. High meadow flats, base Sheep Peak proper. 11,700 ft.

No. 7331. *Trifolium monense* Greene.

Forming close mats in sandy gravelly soil: Sheep Mt., flat. at east base. Flowers 18 or 20 in a cluster, pink. 11,500 ft.

No. 7332. *Haplopappus apargioides* ^{Gray}

This composite has almost prostrate stems. Rays yellow with red-brown backs. 11,500 ft.

No. 7333. *Draba stenoloba* Ledeb.

Flowers yellow. Meadow, Campito 10,800 ft.

Mono Co. July 27, 1917.

No. 7334. *Arabis Lemmonii* Wats.

Cor. light purple. Rocky slope near Big Prospector Mdw. 10,500 ft.

No. 7335. *Lesquerella Kingii* Wats.

This crucifer has reclining or slightly ascending stems. Rocky slopes near Campito Mdw. [The fruiting individual from Silver Cañon at 9800 ft.] 11,500 ft. No. 7335a = fruiting.

No. 7336. *Trifolium monanthum* Gray.

Fls. white, 1, 2, or 3 in a cluster. Plants forming extensive dense mats or lawn-like surfaces in the little meadows at east base of Sheep Mt. proper. Associated with *Montia* ^{l.e.} same as 7302. 11,500 ft.

No. 7337. *Pinus aristata* Engelm.
Campito Peak. 11,200 ft. Mett.

No. 7338. *Phegopteris alpestris* (Hopk.)
This fern grew under rocks, Big Pro-

pector Mdw., ridge south. ^{10,300 ft.} Shelton

- No. 7339. *Lupinus breveri* Gray.
 Forming prostrate mats,
 the branches of the crown very
 woody. Wings purple; banner
 white, the lateral margins blue.
 10,200 ft.

- No. 7340. *Senecio* ^{*multicapitatus* Greenm.}
~~*sp.*~~ (*det. Robt. Ediger*)
 Rays most commonly 5. Bushy
 8 to 18 in. h. 10,000 ft.

- No. 7341. *Chrysothamnus*.
 Rays 3 (or 4). This is
 also on the sides of Sheep Mt.
 Bushy, woody, 6 to 7 in. h. Rays
 often 2. 10,000 ft. Common on the
 high alt.

- No. 7342. *Potentilla*, prob. *P. pennsyl-*
vanica reduced. Flowers having as if
 never fully opening, the petals

not rotate but erect as a little cup-
 ped. Stamens 9, 10, 11, 12. ^{the flower} Moist-
 glands. To 8 in. h. Diffuse or suberect.
 10,200 ft. = *P. pennsylvanicum* L. var. *ovatum*
 Crum.

- No. 7343. *Chrysothamnus viscidiflorus* var. *puberulus*
 Loc. East Napton Rays none. Low bush
 5 to 6 in. h. 10,000 ft.

- Radicula
 No. 7344. (*Roripa*) *sinuata* Greene var. *integrifolia* ^{Gepson}
 This crucifer grew along the border
 of meadows. 10,000 ft.

- The noisy rasping call of the *Chauv.*
 Crow is common in the Linde
 Pines on the hillsides above our
 camp.

- No. 7344a. *Urtica holosericea* Nutt.

By mountain streamlet.
 — In the lower Silver Cañon (apparently
 same thing) 5-6 ft. h.

- Coming down from Sheep Mt. along the plateau under its east slope I fell in with a flock of Sage Hens that are feeding in the sagebrush. As they walked along the ground they struck me as being very large - as large as turkeys. As I followed the trail and came closer it soon developed that there were a considerable number of them. I counted to 14, and then they flew, perhaps 35 altogether. There were some smaller ones. They flew ^{low} with a very heavy flight and alighted at no great distance, about 400 yards. This was at 10,300 feet. A little further down the trail I flushed two more.

- Death Valley Scotty has a bad reputation with mining investors. He

has sold a number of fake or salted mines to trusting people. Most of these people were glad to escape from so desolate a region as Death Valley and let the matter go. One party of investors was however so much incensed that they determined to go in after Scotty. They did not keep quiet about their plans and Scotty prepared a reception for them. He hired some Indians, at least - there was one Indian in the hired gang, to shoot up the avengers when they came in. Scotty and his brother were, however, wandering about the country and they were mistaken for the avengers. Scotty's brother was shot up pretty badly but survived. This reads like a story book but is actual fact and is vouched for by Denton, Sup't. of the Furnace Creek Ranch, one of whose Indians took part

in the affair. A similar incident forms a vital link in the plot of Frances Hodgson Burnett's story: "The Loss of Louie's".

- *Cercocarpus ledifolius* Nutt.

Occurs in pure well-defined areas below *Pinus flexilis*. Shrubs 7 to 10 ft. h., many stemmed, branching at ground commonly, the trunk at ground 8 to 12 in. diam.

- We are to move camp to Mc Afee Mtns., 14 miles n. of here, and within 6 or 7 miles of White Mountain Peak. We ^{must} pass over high country, along the backbone, to get there. McLean of the U.S. Geol. Survey, was sent on today to interview a shepherd about packing. He humorously remarked that we were send-

ing him on that round hoping that he would ^{never} get lost and never return. A good many trips are planned on the spur of the moment which it is seen afterwards might as well not have been done. This trip is a hard one and necessitates going over passes 12,000 feet high.

It has rained every day more or less since we arrived at this altitude. It has also hailed. July 29 it hailed severely for a few minutes, the hail stones, twice the size of peas, made a great sight dancing on the short green turf in front of our camp*. The stones bounced 6 to 12 inches or more. It is very cold and bleak and cloudy most of the time at this altitude, in strange contrast to the desert valleys which lie about the range.

* Head of N. Fork Crooked Creek.

No. 7345. *Carex heteroneura* W. Booth, Det. K.K.M.
Large bottom near Big Prospector
Mdw., 10,200 ft.

No. 7346. *Navarretia breweri* Greene.
With 7345. Corolla yellow, the larger
calyx-teeth as long. Stamens: anthers
at mouth of corolla. Seed 6. One of
the 5 calyx teeth longer than corolla.
I note in one flower. Only 2 fls. dis-
sected. 10,200 ft.

No. 7347. ^{Horkelia} ~~Potentilla~~ *hispida* (Rydb.)
Jepson. Petals white, narrow-
obovate, truncate, spreading (with
the triangular-lanceolate calyx
teeth) rotately. Stamens 10, 5 long
and 5 short, all with white dilated
filaments. Petals cuneate-ob-
ovate, a better expression, emarginate
or retuse. The apex of the petals
varies from rounded to notched.
Calyx low bowl-shaped. 10,200 ft.

No. 7348. *Oryzopsis hymenoides* Richter.
This grass grew in the "orchards" of
Lercocarpus ledifolius, 9800 ft.

No. 7349. *Elymus* ^{*cinereus* Scribn. + Meyer.} ~~*condensatus* Presl.~~
This grass grew with 7348. Det. A.S.
4.

No. 7350. *Artemisia tridentata* ^{Nutt} ~~ssp.~~ ^{*tridentata*}
With 7348, 9800 ft.

No. 7351. *Senecio multilobatus* T. + G.
within 2 mi. of Big
Prospector Mdw., rocky cliff, on
branch of Silver Creek. Rays yellow
9700 ft.

= *Descurainia richardsonii* ssp. *incisa*
No. 7352. *Sisymbrium incisum* Engelm.
^{var. *hartwegianum* Wats.}
This crucifer grew in the cañon
bottom of a fork of Silver Cañon,
about 2 mi. from Big Prospector
Mdw. 9700 ft.

No. 7353. *Agropyron* ^{white Mts.} ~~tenuum~~ ^{vasey.}

This grass grew with 7352.

9700 ft. Det. A. S. H. *A. trachycaulum*
(Det. A. Crampton, 1912)

No. 7354. *Roripa sinuata* Greene var. ⁱⁿ⁻ ^{tigna} ^{Jepson.}

With 7352, 9700 ft.

Above name in Fl. Cal. but *Radicula* etc.

No. 7355. *Jayophytum lasiospermum* ^{Greene.}

With 7352, about 2 mi. from Big

Prospector Mdw. 9700 ft.

No. 7356. *Polygonum*

With 7355. 9700 ft.

No. 7357. *Cryptantha glomeriflora* ^{Greene.}

This borage grew in the Sagebrush

association near the Summit

Trail and not ^{far} from Big Prospector

Mdw. 10,300 ft.

No. 7358. *Cystopteris fragilis* L.

This fern grew near Big Prospector

Memo. July 30, 1917.

Mdw. in the rocks, 10,300 ft.

Det. C. C. H.

No. 7359. *Potentilla pennsylvanica* L.

var. *strigosa* Ph. Stamens 19, 16, 18

Petals yellow, obovate, truncatish.

11,100 ft. County Line Hill

No. 7360.

Very dense bushes, 8 to 16 in. &

1 to 3 ft. broad. Rock pile,

Contrast between the white

woolly stems and the dark

green leaves very marked

Rayless. County Line Hill, 11,000

ft.

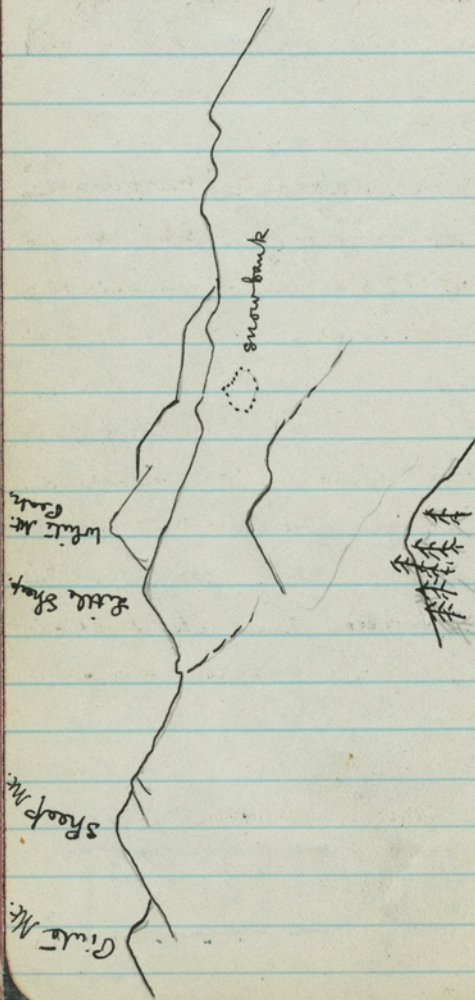
No. 7360 a.

With 7346

136

County Line Hill, White Mts.

11,100 ft



White Mountains,
from Black Hill (= County
Line Hill).

X Campito Mdw.

Memo. Aug. 1, 1917

207

Hesperochloa kingii (Wats.) Rydb.

No. 7361. *Festuca confinis* Vasey.

This grass grew on a rocky slope,
- its roots between boulders.

Det. A. S. H.

No. 7362. *Calamagrostis purpurascens* ^{P. Br.}

This grass grew on the same
slope as 7361 and under the
same conditions. Det. A. S. H.

No. 7363. *Opuntia rhodantha* Schm.

This cactus grew in a rock pile
at 11,000 feet. Low, 4 to 7 in. h.

Fls. yellow, almost yellowish-white.

^{very pale}
Perhaps the better descrip. for color
is greenish pale cream-color.

No. 7364. *Pellaea breweri* Eat. Det. C. C. H.

This fern grew under the rocks on
a rocky slope.

No. 7365. *Carex exsecta* Mackenz. Det. K. K. M.

Rocky slope.

- No. 7366. *Erigeron clokeyi* Cong.
 Rays lavender. Rocky slope.
 County Line Hill, 11,150 ft. Aug 1.

- The White Mountains were first
 botanized by ^{W. H.} Shockley. He is a
 mining engineer and was for
 a time at Candelaria, Esmer-
 alds Co., Nev., not far from
 this place. He now lives at
 Palo Alto. He knows Chinese
 and talks it well, having
 been an engineer in China. He
 married a classmate of Jos.
 Grinnell at Stanford.

- "No. 7367. *Populus tremuloides*
 Poison Creek. H. G. White

- "No. 7368. *Senecio integerrimus* var. *major*
 (Gray) Cong.
 Sheep Mt.
 A. C. Shelton.

Monrobo Aug. 1, 1917.

- "No. 7368a. *Aulicularia*
 County Line Hill.

10,000 ft

No. 7369. *Potentilla gracilis* Dougl.
var. *hallsii* Wolf.
Stamens 21, 23, 29. Petals yellow.

low, very broad & rounded, a little notched at apex.

No. 7370. *Delphinium simplex*
Abundant in the creek bottom.

No. 7371. *Antennaria norvegica* Fries
var. *saxatilis* (Benth.) Jeps.
Common in the creek bottom.

No. 7372. *Carex festivella* Mackenz.
Det. K. K. M. Creek bottom.

No. 7373. *Sphenosciadium capitellatum*
Gray. This umbellifer was abundant in the creek bottom. See p. 141.

No. 7374. *Lappula coerulescens* Rydb. var.
brunnea Jepson.
Gorge in creek bottom.

- Poison Creek.

Populus tremuloides

Aquilegia truncata

Delphinium simplex (No. 7370).
3-4 ft. h.

Umbellifer (No. 7373), very abundant.

Poison Creek is very gay and floriferous; in contrast to all the adjacent country the vegetation is very rank. The cañon is delightfully wooded and it is a pleasure to walk thru it. The aspen is abundant, 15 to 35 ft. high, and the cañon walls have the tin pines of the region.

No. 7375. *Eriogonum*
Sandy bottom. 9500 ft.

No. 7376. *Dodecatheon jeffreyi* Moore.
wet mdw. 9500 ft.

No. 7377. *Populus trichocarpa* T & G.
N. Fork Poison Creek.

- Unnamed Creek, n. fork of Poison Creek.

Tall Lupine no. 7245.

Chamaetricha millefolium
+ *Cercocarpus ledifolius*
in the rocks.

Munilobus Langsdorffii abun-
dant along stream

Holodiscus discolor, heav-
ily flowering, in the rocks

This cañon was interesting
botanically. It also contains
the aspen, and also a *Populus*,
perhaps *Populus balsamifera*,
(see no. 7377).

A short distance up this
cañon I crossed over a little
divide to a fork of Cottonwood
Creek and went down it to
that creek. I trailed up Cotton

wood Creek, the lower part of which
I found very interesting. The
scenery is diversified by granite
domes, some smooth, most fre-
quently very much broken and
ragged. Little cañons with flat
grassy bottoms join the main
Cottonwood Cañon. One of these I
admired very much. Out of its
meadow a little distance up rose
a block of rock, its strata verti-
cal, making a sort of mini-
ature El Capitan.

Further up the cañon bed became
dry, the stream originating in a
meadow which I passed. It was
rough uninteresting going all the
way to the main divide where I
picked up the summit-trail
from Big Prospect Mdw. and
followed it north to McAffee

144 Cottonwood Creek, White Mts.

Creek where I am now in ^{Sage} camp
at the sheep camp of Emil
Maculene at McHfee Mdw.

No. 7378. *Heuchera rubescens* Torr. ^{var. *alpicola* Jeps.}
*var. *nevadensis* Jeps.*
Rocky wall. 10,000 ft. ^{San,}
= *var. *nevadensis* J.* ^{of}
F.H. C.B.

No. 7379. *Artemisia dracunculoides* L.
Creek bottom.

No. 7380. *Galium*
Rocky bottom at Grey-haired Johnny's
Corral.

- A little after 8 o'clock on the
morning of the third I
start for the Peak. The
way is along the plateau
without serious ups and

Nov. 30. White Mts., Aug. 3, '17. 145

downs, till one comes to a saddle
at the base of White Mountain Peak.
Here the climb begins at about
13,000 feet and is mostly sharply
up, the upper $\frac{1}{5}$ of the climb
being over broken blocks of rocks
on a sharp ascent to the monu-
ment at 14,242 feet. The view
of the Sierra Nevada is north-
west as well as that of Fish
Lake Valley eastward. This range
extends northward still some
distance. The vegetation on the
peak proper is exceedingly scanty,
scanty in individuals and still
scantier in species.

Returned to the sheep camp
at McHfee Mdw. It was very cold
here last night, at 12,000 feet; the
sheepherders blankets were poor and
wet, and rather than pass such
a miserable night as last night -
there is hardly any food except (see p. 149).

- The only plants on the peak proper are the following:

Polemonium chartaceum.

No. 7383. Compare its leaves with *Potentilla*

and other high alpine species. The leaf form is an adaptation plainly to high alt. and is not generic.

Grew within 15 ft. of top.

Erigeron (No. 7382)

Grew within 100 ft of top

Cnicus (No. 7385)

Ranunculus oxynotus (No. 7384)

Calyptridium (No. 7386).

Petals 4, alike, oblong, apiculate. Stamens 3. Fls. white.

Draba Lemmonii (No. 7388)

(No. 7390)

Fls. white; petals cleft; stamens 10.

Hulsea (No. 7387) *algida* Gray.

- The high Table-lands between McAdams Mtn. and White Mt. Peak. are turfed with:

Draba Lemmonii (No. 7388).

Eriogonum (small pink heads ex-
tufted with the leaves; the
foliage a very dense mat.)
No. 7393.

Pink Montia (No. 7308).

Matted *Phlox* (No. 7325). *Phlox*
covillei. E. Nels. See p. 121.

Green Mouse-tail *Potentilla*
(its stems reclining). No. 7334.

Low alpine *Antennaria* (No. 7397)

Castilleja (No. 7320).

Pentstemon *empheticus* (No. 7398).

This becomes quite pro-
strate, even to the flowering
stems, at high altitudes.

See No. 7398.

- Cont. from p. 145 - macaroni and the
like - I determine to walk back to
the main camp, 14 mi. over three divides
11,700 to 12,000 feet high. This is a
most grand walk, mostly along a plateau
at 12,000 feet. The very fine clouds, glimpses
of the sierras and the panorama of the
desert mountains, the luminous blue sky
between the clouds and the great
peaks around. A thunder-storm roars
over Fish Lake Valley. The rain forms
a veil of black, but the sun shines
thru the veil lighting the red slopes
of the range beyond in glowing color;
above high in air the snowy clouds
are piled; and as the sun gets lower
the colors of evening paint in shades
of pink masses of cloud structure
here and there. It is a very wonderful
walk and I reach the base camp on
N. Fork Crooked Creek at 8:15 P.M.

White Mountain Peak
= Mt. Olmsted. 14,242 ft.

No. 7381. *Pedicularis attollens* Gray.

McKee Mtn. Corolla white*
with purplish markings. Middle
lob: lower lip smaller than the
lateral. Upper lip saccate, pro-
duced below and beyond the
sac into a slender proboscis
which includes the style.

* = or somewhat flesh-color.
"white", is sufficiently accu-
rate for descriptive purpose
12,000 ft.

No. 7382. *Erigeron compositus* var. *glaberrimus* Macrom.

Rays pink to lavender
within 100 ft. top and on sides.
The most common plant.

See p. 146

No. 7383. *Polemonium chartaceum* ^{Mason}
From 13500 feet to Summit.

Mono. Aug. 3, 1917.

Corolla most beautiful sky blue.
See p. 146

No. 7384. *Ranunculus oxynotus* Gray
Cor. yellow. Rocky slope, 13,700 ft.

No. 7385. *Parrya suncarpa* Jepson.
This crucifer grew on a shaly flat
at 13,900 feet and was evidently
scarce as I found only one individual.
See p. 146.

spraguea umbellata Torr.
No. 7386. *Calyptridium* var. *caudicifera* Gray
13,800 feet. See notes on

p. 147.

No. 7387. *Hulsea algida* Gray.
Flat at 13,700 feet. Rays
yellow, bright but not deep yellow.

= *D. oligosperma* Hook.
No. 7388. *Draba glacialis* Adams.
See p. 147. 13,300 feet

- No. 7389. *Potentilla rubricaulis* Lehm.
13,200 feet. 2 *P. pseudosericea*
Rydb.

- No. 7390 *Cerastium beeringianum* Cham. & Schreb.
This chickweed grew im-
bedded in small patches of turf
at 13,300 feet. See notes on p. 142

- No. 7391. *Lewisia pygmaea* Rob.
13,000 ft.

	Petals	Stamens
No. 1.	7	5
No. 2.	6	7
No. 3.	7	5
No. 4.	6	4
No. 5.	6	5

Styles 5 (or 4)

- No. 7392. *Eriogonum ovalifolium* Nutt.
var. *nivale*
This forms the dense
carpets at 13,000 feet. Fls. white

- No. 7393. *Eriogonum ovalifolium* Nutt.
var. *nivale*
Flowers red or pink, the
heads sometimes raised on ped-
uncles, sometimes embedded or
nearly in the foliage. 13,300 ft.
See p. 148.

(*P. pseudosericea* Rydb. var. *gracile* Bown ^{W. J.})

- No. 7394. *Potentilla breweri* Wats. = *P. B.*

- Pets, yellow, obovate, retuse.
Flowers opening widely ^{Broadly}
In the "saddle" at base of peak ^{partly}
[Rough counts: stamens 16, 18, 19, 18; spurs dry.]

- No. 7395. *Carex Helleri* Mackenzic
Det. K. K. A.
moist rocky plateau, halfway betw.
Mt. Lee Indv. and base of White Mt.
Peak. 12,700 ft.

- No. 7396. *Rumex paucifolius* Nutt. var.
gracilescens Reichef.
with 7395

No. 7397. *Aulicularia*

♂ + ♀ With 7395.
12,700 ft.

See p. 149.

No. 7398. *Pentstemon geniculatus* Greene.

With 7395. often quite prostrate, flowering stems and all. fls. blue. See p. 149.

No. 7399. *Androsace septentrionalis* L.

var. *subumbellata* fls. white. With 7395.
↑ A. Nels.

No. 7400. *Oxyria digyna* (L.) Hill

With 7395.

No. 7401. *Senecio integerrimus* var. *major* (Gray) Cronq.
Rocky bluffs at McAfee

Mdws. 11,700 ft.

No. 7402. *Solidago*.

near Little Sheep mt.

11,600 ft.

Mono. Co. Aug. 3, 1917.

No. 7403. *Rumex paucifolius* Nutt. var. *graciliscens* Reck. f.
near Little Sheep mt.

No. 7404. *Raillardella argentea* Gray

This composite grew on the flat near ^{trail} stone-house in mdws. n. of Sheep mt. Alt. 11,650 ft.

No. 7405. *Eriogonum ovalifolium* Nutt. var. *nivale*
With 7404.

No. 7406. *Senecio werneriaefolius* Gray

This composite grew on the loose-shaly sides of Little Sheep mt. 11,700 ft.

No. 7407. *Arenaria Kingii* var. *glabrescens*
Stamens 10. Styles 3, distinct
A gland between the short

claws of each petal, i.e.
short petal claws with glands
alternating. Pts. white.
Closely matted, the most
common plant (herb) of the
hillslopes. = Chicken weed of
the sheepherders. Big Pros-
pecter Mtn., 10,500 ft.

No. 7408. *Chamaebatiaria millefolium*
Maxim. See p. 157. Circa 9000 ft.

No. 7409. *Laphania microcephala* Wats.
Heads bright brownish
yellow. Intricately branched bushy
plant, low and rounded. The
stems of this spm. cut off almost
at ground. Silver Cañon, circa
8000 feet.

- *Pinus aristata* Engelm.

Trees 3 to 4 ft. diam. limbs
at 1 or 2 feet are not uncommon.
Branchlets often conspicuously
pendulous. Cones
subterminal, the young cones
look as if terminal. Bark
light-drab with streaks of black
in the fissures. Height 20 to
40 ft. sometimes 55 ft. - I
saw none but this species, no Tim-
ber Pine, between Prospector Mtn.
and main Silver Cañon along Sum-
mit Trail. Of course I did not look
at every tree, but no timber caught my eye.
- *Chamaebatiaria* (No. 7408) *millefolium*.
Stems many from base, slender.
Whole appearance and aspect
of flowers suggestive of a
Prunus emarginata bush. -
More ^{50 in} some cases than in others
however.

— *Pinus monophylla* Torr. & ^{Gray}
 Joins on to *Pinus ariz-*
fatæ at the point where
 the Summit Trail joins
 the wagon road. Some
 Juniper at this point,
 I took it to be *J. utah-*
ensis, but it occurred
 only at the upper limits
 of the *Pinus monophylla*.
 I pass thru a fine forest
 of the Piñon and note
 many remarkable oak-like
 trees. One on a steep almost
 cliff-like cañon wall
 particularly attracted my
 attention. Architecturally
 it might have been an
 open-headed Coast Live
 Oak. The oak-like character
 was remarkable. The trunks
 are strikingly light red-brown.

— *Cercocarpus ledifolius* Nutt.
 Occurs in broad vertical
 bands on cañon walls, con-
 forming to the blue rock,
 perhaps serpentine. The blue
 cast, as I see it across the
 cañon is remarkable. The hue
 of mahogany seems to have
 a dull blue-green look also,
 but of darker line than the
 country in which they rest,
 — East wall Silver Cañon,
 8500 ft. — On high
 cañon walls of great steepness,
 almost vertical, 1500 to 2000
 ft. h., the mountain mahogany
 occurs on the ledges all the
 way to the top. It seems one
 of its favorite habitats.

No. 7410. *Castilleja stenantha*
Often very tall, $2\frac{1}{2}$ ft., per-
haps 3 ft. h. Along stream in
bottom Silver Cañon, 6500 ft.

(Also in Owens Valley, 3 ft. h., very showy)

No. 7411. *Glenatis linguistifolia* Nutt.
with 7410.

No. 7412. *Epilobium adenocaulon*
var. *occidentale* ^{Greene} ~~Greene~~ ^{Saunders}
with 7410.

No. 7413. ^{Echinocereus} ~~Cylindropuntia~~ *mojavensis* Engelm. ^(+ Bigel)

This cactus form a big, sort
of pincushion plant 18 inches
broad and 9 or 10 inches high,
perhaps 35 or 40 little "barrels"
composing it. Silver Cañon,
circa 7500 feet.

No. 7414. *Petalonyx* ~~thunbergii~~ ^{Gray}
~~nitidus~~ ^{Wats.}

Forming showy plants $1\frac{1}{2}$ to
 $2\frac{1}{2}$ ft. broad and 13 to 16 in.
h. - Cañon bed in dry places.
6000 ft.

No. 7415. *Cercocarpus intricatus*
Wats. Silver Cañon, lower walls,
not noticed above 6300 feet,
thence down to about 6000 feet.

No. 7416. *Salix*
Forming a very dense
clump in bottom of Silver
Cañon, not near the running
water. 5500 feet.

No. 7417. *Atriplex*
Bush 5 ft. high and
7 or 8 ft. broad; bottom cañon.
5000 feet.

No. 7418. *Tunus torreyi* Cov.

The leaves few, standing out stiffly in a perfectly rigid straight line. Margin of running water 5500 ft.

No. 7419. ^{= *A. fascicularis* Dene.} *Asclepias mexicana* Cav.
3 to 4 ft. h. Cañon bottom.
5500 ft.

- *Lepidium Fremontii*, the only crucifer noted in Silver Cañon.

- *Chrysothamnus paniculatus*, with the bunch-like leaf; also the gray l. first noted in Huanupah Cañon.

- *Melilotus alba*.

- *Tamarix gallica* occurs planted about Laws, - used for hedges.

- Last night I reached Laws late in the evening. I left the N. Fork Crooked Creek Camp at 11:30. I had a riding animal brought up from below by Antonio Spie who arrived at camp early yesterday to pack the party of zoologists into McFee Mdw. I had a fine ride thru the sagabuel formation, thru thru the Bristle-cone Pine forest (*P. aristata*) and finally zig-zagging down thru the Pinus monophylla slope to the bottom of Silver Cañon. I had a late dinner at Sain camp, cooking delicious bacon and a pan of pea soup, and then went on to Laws. - Aug. 5, 1917.

- My walk yesterday from McFee Mdw., 11,500 feet to the saddle at head of Milner Creek, the climb of White Mt. Peak, 14,242 feet, the return to McFee Mdw., the hike to N. Fork Crooked Creek over three divides, 12,000 feet, 11,700 feet, 11,700 feet, making a total of about 28 miles in twelve hours, counting in stops, preparing meals, etc. - all this was as strenuous a day's climbing as I have done in recent years. See p. 149.

Tehachapi Mts.

near Tehachapi sta.

- All the lower country here, Tehachapi Valley, is very dry now, and very hot. The altitude is only about 1000 feet above the Mohave.

- *Fremontia californica* Torr.

16 ft. h., trunk 17 in. diam.*

at 4 ft., trunk 7 ft. h.,

crown very rounded. [*I judge this to be a clerical error for "circumference" because I find no other records so great by half - W. J. Sims, '32, J.]

- The arboreal association at the mine is: -

Abies concolor, ^{some trees} occurring in a cañon lower

than *Pinus sabiniana*

Pinus sabiniana

Pinus ponderosa

Quercus chrysolepis, common

Quercus Kelloggii, common.

Aug. 7, 1917.

and also the following shrubs:

Quercus dumosa

Cercocarpus parvifolia

the birch-leaf species

Fremontia californica Torr.

Artemisia tridentata

- Stopped off at Tehachapi on my way to Berkeley; walked southerly into the Tehachapi Mts., ^{climbed and} crossed the first lower range, went down into a cañon where there is a mine and a road up to it from the direction of Old Town, climbed the next ridge to about 5700 feet. The mine proper is on this wall at about 5600 feet. The slope is covered with the species of trees noted on p. 164. *Abies concolor* extends to very bottom of cañon at point where I crossed it.

No. 7420. *Eriogonum umbellatum*
var. *stellatum* Beautiful bright sub-
plum mounds 10 to 16 in. h.
and 1 to 3 feet broad. Hillslope
5600 feet.

No. 7421. *Eriogonum fasciculatum* var.
foliolosum 18 to 24 in. h. and
half to as many times again
broad, i.e. 1½ to 3 ft. broad. Hill-
slope. 5400 ft. No other form of
this aggregate seen in this region.

No. 7422. *Leptotaenia dissecta* var. *mut-*
tifida Jepson. 2½ to 3 ft. h. Open
spots in brush, hillslope 5400 ft.

No. 7423. *Cirsium*
Barren bottom. 3½ to 5
ft. h. The flowers bright

pink-purple and very fine. 5½ ft.

No. 7424. *Asclepias viricarpa* Benth.
Fls. dark reddish-purple
or magenta. 2½ to 3 ft. h.

Bumble bees were on the fls and
also the large showy slender
insect with the deep or dark
red-brown wings noted on this
species at Columbia, Tuolumne
Co. 5100 ft.

No. 7425. *Fremontia californica*
Torr. Abundant on the higher
slopes; 8-14 ft. h. 5300 ft.

No. 7426. (Discarded, insect damaged)

Flowers a real blue-purple
or rather the ^{dark yellow.} rays. Hillslope
in half-open woods. 5300 ft.

- no. 7427. *Pentstemon bridgesii* Gray.
Corollas crimson.

Forming bright spots on hillside
in half-open woods + brush.

5200 ft.

- no. 7428. *Eriogonum nudum* var. ^{pubiflorum}
with 7427. 5200 ft.

- no. 7429. *Cercocarpus parvifolius*
Nutt. Abundant, forming
whitish bands and zones on the
slopes, the fruit thus abundant
and conspicuous. 5000 ft.
= *C. betuloides* Nutt.

- no. 7430. *Eremocarpus setigerus*
Benth. Fields, Tehachapi Valley.
4300 ft.

- = *A. Munia* Dur. & Hilg.
no. 7431. *Argemone platyceras*
Link & Otto. Bushy, glaucous; in
cult. orchard. Tehachapi Valley.
4100 ft.

- no. 7432. *Eichorium Intybus*
Common in waste places
and along the roadways. Also
observed near Napa.

- no. 7433. *Asclepias triocarpa* Benth.
Knights Valley. Under sus-
picion as poisoning cattle.
(Sonoma Co.)

- no. 7434. *Prunus subcordata* Benth.
Thicket, a small one, 6 to 7 ft. h.,
in the little valley southerly from
the St. Helena Sanitarium, on the lower
slopes Howell Mt. Alt. 600 ft.

- no. 7435. *Anemone* ^{*robustus*} *campestris* L.
Union Sta. This umbellifer is common
in waste places along the roads
from Yountville to Napa. Aug. 17.
no. 7436. *Scorpus* ^{*robustus*} *robustus* Pursh.
Benicia, marshes, Aug. 18.

No. 7437. Ch

✓ Benicia, marshes. Aug. 18
 No. 7438. ~~Centaurium~~ *Trichanthus* ~~Robt.~~
 Aug. 15. Calistoga - alkaline flat.

- *Xerophyllum tenax* Nutt. Mrs.
 Lyman ^{of St. Helena} speaks of this species as
 occurring on the ridge above their
 place on the west side of Napa Val-
 ley north of St. Helena, and as being
 called Bear Lily and Fire Lily.

- Abrams Flora of the Pacific Coast:-
 Includes Ore., Wash., Idaho, Nevada
 and Cal., acc. Mrs. A. T. Grant who
 says Britton is to put up half the
 expense of publication and drawings
 (she thinks the estimated sum was
 \$10,000⁰⁰), partly in cuts from the
 Flora of Northeastern U.S. and the
 rest in cash. The book is to be sold;
 from the sale Britton is to be re-
 paid first; then Stanford University
 is to be repaid for the sum

Aug. 1917.

advanced by royalties. Abrams rep-
 resented to the that the book would
 sell and they advanced the money on
 the idea that it would all come back
 from sale. Abrams, it seems ^{acc. Grinnell}, would
 hardly finish such a work by him-
 self, since he does not work rapidly
 or finish things up promptly. Mrs.
 G. says he is devoted to his wife who
 is an invalid; that he has a very happy
 home life; and that he seldom gets to
 the herbarium before ten, and leaves
 about 4 or the latest 5, and that he
 does not get any time for work at
 home. This condition, therefore, is the
 reason for his decision to use col-
 laborators in the preparation of his
 flora - Aug. 21, 1917.

No. 7439. *Picris elchioides*

4 ft. h. Lake Tamescal. Sept. 1.

* No. 7440. *Arctostaphylos glandu-
 losa* Eastw. Oakland Hills. Sept. 1.

- Grant, Geo. B. Died at Pasadena, Cal. Aug. 16, 1917. Had been in poor health and had come out again, from Mass., to Cal. a year or two ago. — See S.B. Parish.
- Lemmon took 3 trips with Parry, ^{C.F.G.}
 (a) to Bear Valley, San Bernardino Mts.,
 (b) towards the desert of the Colorado as far as Whitewater (possibly as far as Palm Springs but I think not), (c) to Cotton Pass and edge of the Mohave Desert as far as Las Flores (Burcham) Ranch and to the best of my knowledge and belief no other trips at all. Parry had a ^{railway} pass on the C.P.; he had gotten acquainted with Stanford and thru him obtained free railway travel. Lemmon had a pass also for a long time." — S.B. Parish. Sept. 11, 1917.
- + "Greene's Landmarks, vol. 2, ms. is

now ready for publication. Curiously enough the ms. got into the possession of a serving man (negro) who worked for Greene. This man put in certain claims against Greene's estate and refused to give up the ms. until paid. It was with difficulty the ms. was secured from him" — S.B. Parish.

— "Phyllogonum luteolum Cov. I collected 30 or 40 plants in type loc. It was scarce and I did not find it above or below a zone of a mile. It is evidently a rare species and I do not believe any one else has found it except Coville and Jepson. I found it in one place in another cañon about 2 mi. south on the same side of the valley." — S.B. Parish.

— *Taxus brevifolia*. Furthest south station in the Sierra known to me = 18 mi. n. of Sonora. — Ralph Hopking.

- Palmer, Dr. Edw. "Went with Parry out thru the Cagon Pass to the edge of the Mohave Desert in the direction of Las Flores (Burcham) Ranch in 1877 or '78. Palmer did not otherwise botanize in the Mohave, nor did he go into the high San Bernardino Mts. When Watson cites new species as "headwaters of the Mohave River" that means the place where the river breaks out of the mts.

at Las Flores Ranch." - S. B. Parish.
But see Syn. Fl. 2^d: 235 (Palmer in Providence Mts.) - W. L. J.

- At Warner's Ranch I saw, long ago, the Indians rotting Yucca mohavensis leaves in water, and extracting the fibres to make saddle blankets 3 inches thick. They were porous and very good and wearable. One found them for sale in the saddle

shops in the region." - S. B. Parish.
Sept. 17, 1917.

- *Lilium parryi*. S. B. Parish says the type spurs were obtained on the n-side of San Geronimo Pass near "Pine Bench" of the ^{U.S.} Topographic Map. Not in San Geronimo Pass. Mr. Parish says it is extinct there now. [The name of the ranch is given in Parry's account of his discovery. See Elmer's *Lilium*]

- *Mimulus luteus* (Lange) (Lange) Parish says that in moist sand at Pacific Grove he found prostrate stems which were without doubt perennial. He thinks where there is moisture that the plant is perennial; where the soil dries out in the summer the plant dies and is annual in consequence.

- *Allium deserti* Engelm. Parish

says that he can find only one Agave in the San Felipe region. If you boil the fls. in water and kill them, you get good herb.

spurs. If you dry them without killing they continue to grow in the sheets and ⁱⁿ this way one can account for the presumed characters of Agave consociata Trelease. - Sept. 15, 1917.

- On the Bot. 104 field trip Friday ^{woman} the students came dressed in knickerbockers without skirts. Undoubtedly this is a highly sensible dress for the field in the rough work in the cañons. But it is the first instance! Will such costumes sometime be the prevailing or usual ones?

- *Ceanothus sordidatus* H. & A., forming ^{pure} thickets in the hollows of the gulches on the south side

of Telegraph Cañon. Today I measured an individual in Juniper Gulch: 16 ft. h., 1 ft. 3 in. circ. at 18 in.; trunk 5 ft. 6 in. high (to first fork). This species, probably shade-tolerant as seedlings, and comes up under cover of other brush. It looks like a climax stand. The stand was originally very dense, individual poles 12 or 13 feet high and less than 1 inch diam. having been shade-killed. - Sept. 20, 1917.

- Rainfall. The first rain of the season broke this morning Sept. 22 - "Equinoctial storm". There was a trace a few days ago but this storm is witting things.

- *Ranunculus occidentalis* ^{comp.} J. P. Tracy grows in the Bald Hills region of Humboldt Co. and has an entirely different

range from *R. californicus* on the coast. The latter grows in the moist coast climate and keeps to it, altho extending up the main Eel River a little way.

R. occidentalis - ^{petals 5, 0} round; achenes flat; beak curved, sabent.

R. californicus - petals many, narrow; achenes turgid; beak curved, knob-like, short.

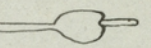
He regards the Howell Mt. plants as narrow-petaled forms of *R. occidentalis*. The form of the beak has been overestimated.

- *Habenaria michalei*. Tracy regards this as very different from *H. elegans* as the two occur in his region. The former grows in grass land it very light green or fea-green flowers very unlike the white flowers of *H. elegans*.

- *Allium unifolium*, not rare in its local areas, says Tracy, in rich soil. It is quite showy, conspicuous in the grass, like a garden flower, unless cattle eat it.

- *Allium Bolanderi*, same bulb formation as *A. acuminatum*. The horizontal position of *Bolanderi* is a mere accident says Tracy. The position has nothing to do with it. *A. unifolium* has a very peculiar and entirely different formation. - J. P. Tracy. I am satisfied there is nothing in the bulb character of *A. Bolanderi* to separate it from *A. acuminatum* (J. P. T.).

- *Brodiaea congesta*, common ^{Humboldt Co.} in grain fields as tall as the grain (being a tall species). Also common on Howell Mt. - J. P. Tracy

- *Brodiaea peduncularis* Lindl.
Produces offsets,  so.

The offsets seem as if produced thru the new bulb! a conceit on the outer end heightens this idea. Grows in my garden -

J. P. Tracy.

- *Brodiaea Bridgesii* - I regard this as quite distinct from *B. laxa* and that if living flowers were studied side by side good differences in androecium and gynoecium could be found. This species with its violet-blue flowers sometimes produces flowers that have a yellow cast! - J. P. Tracy.

This last remark is interesting in view of *B. modesta* as a form of *B. crocea*. Tho' *B. ida-ina*

(normally red) sometimes throws yellow fls., it is more remarkable that a yellow-flowered species should throw a blue-flowered state as is presumably the case in *B. modesta* as a color form of *B. crocea*.

- *Erythronium revolutum* and *E. californicum* are alike in bulbs, leaves and fruits, and differ technically only in stamens. *E. revolutum* is commonly lilac, i.e. with the same tinge as *Colypos borealis* but not so deep. *E. californicum* - creamy white fls. The two grow at Kneeland Prairie, and the flowers are not constant in color at that station, but the technical difference is maintained! - J. P. Tracy.

- *Brodiaea ida-maia* and *B. congesta*. I have found a natural hybrid between the two! which would seem to invalidate *Brevortia*! - J.P. Tracy, Sept. 22, 1917. His hybrid was found in the interior of Humboldt Co. on Buck Mt.

- *Allium parryi* belongs to Big Bear Valley (the loc.) and not in the Bayou says S.B. Parish. "*A. parishii* and *A. fimbriatum* are close together and I would not object to their merging as one species, but I am certain they are not identical with *A. parryi*."

- S. B. Parish, Sept. 1917.

- *Pinus jeffreyi*. F.M. Anderson has just re-

turned from a flying trip to Washwood and return via Tahoe, with ^{W.H.} Herrin of the S.P. He contends that he had no trouble distinguishing Jeffrey Pine with bluish foliage and Yellow Pine with green foliage even when the trees were only 4 or 5 ft. h. We had quite an argument about the matter. Of course I have never doubted the extremes as distinct, buterson begged out of the intergrades by calling them hybrids.

- Sept. 26.

- Parry made a trip in 1877 to Bear Valley in the San Bernardino Mts. In the previous year, 1876, he climbed ^{Mt. San} Gorgonio, going up Mill Creek

Cañon. He ^{also} went out to the edge of the Mohave Desert (as related above) and into San Geronimo Pass. - S.B. Parish. [The statements as to years were made from memory by Parish but are apparently correct.]

- Parish, S.B. was in a Kansas Regiment during the Civil War. He was teaching in a high school in Mobile, Ala., when the war broke and got out on the last train that went out on the Mobile and Ohio. Recruiting had stopped when he reached the North but he had an opportunity to join a Kansas regiment.

- *Brodiaea capitata*. "Wild Hyacinth" is the only and very commonly used name at San Bernardino. - S.B. Parish.

Oct. 1917.

- *Tomopala*, native name of *Sarcobatus* ^{Indian} *vermiculatus* acc. to Tom Wilson (Piute) ex Panamint-Tow. - Jos. Grinnell.

- *Pinus tuberculata* Gord. A cone of this has been uncovered 42 ft. below the surface on the grounds of the Adelt Blind Home, Telegraph Ave. and about 38th st. There is no doubt, in my judgment, of its being this sp. It is in a most perfect state of preservation, being more or less carbonized. Dr. Clark in Paleontology & Dr. Merriam say it is probably between 500,000 and 1,000,000 years old, being of course Pleistocene.

- *Pinus densata*. Head of Telegraph Cañon + Glory Hole Cañon - Bot. 104 students, 1917.

- *Lycium*. In 1913 I wrote up an account of the Cal. spp. I have now revised it in the light of my field studies in the Mohave Desert, 1916. I had ample time to study the 4 sp. at Barstow and amused myself making several keys to them, so abundant were the distinctions and so clear were they. See *supra*, 32: 70, 71, 100, 101, 102, etc.

Lycium pallidum, ^{Miss.} is abundant on the mesas everywhere, the most common shrub after *Larrea tridentata* and *Frauseria dumosa*. Leaving *L. cooperi* aside, it is the most distinct of all the species. Gray

L. cooperi is very distinct & deserves subgeneric rank.

L. torreyi Gray keeps to the river bottom at Barstow. When

in fruit I do not know how to distinguish it from *L. andersenii* var. *wrightii* as represented by such spms. as Parish (Palm Springs, no. 4132), and Riverside, Reed. Nor do I see why such thin-leaved plants with microscopic ciliate cor. lobes should be regarded as a var. of *Andersenii*, the latter with fascicled jug-shaped little watery leaves. I do not know the original *wrightii*.

L. fremontii, ^{Gray} I am not clear about as being Californian. A spm. from Split Mt., Brandegee, with large oblong berries may be this. It is so determined by Brandegee and I have no reason to question it. Gray in orig. diag. says corolla glabrous, which if a constant character would

excludes my no. 5295a (Purple Hill Pass, Colorado River).

L. Parishii Gray does not seem sufficiently distinct from *L. richii*. A "Colo. Desert" sp. by Brandegee is rather near *L. parishii* but otherwise I have seen no sp. except the topotype from San B. If I could have a field jag in the Colorado Desert at the proper month California *Lycium* could be cleared up, since my Mohave Desert studies are highly illuminating. In fact the new knowledge was so abundant that the Syn. Fl. descriptions seemed utterly colorless, and it was hard to believe they were the same species, not for what the descriptions said but for what they left out.
L. shockleyi Gray. Shockley;

spms. show sessile or nearly sessile flowers, truncate-based calyx, its obtuse lobes sharper than tube. Corolla little exerted. Seems nearest- *L. pallidum*. Evidently good species. - Nov. 15.

Parish sends me fresh spms. ^{*Lycium andersonii*} from Riverside gathered by Deed. The corollas & calyces are exactly like those of my Barstow spms. The cor.-lobes are minutely or as one might say microscopically ciliate; in just the way that the Barstow ones are, that is so obscurely that it would be easily overlooked. But the Riverside plant has plane thin leaves as much as 11 lines long. If this be taken as var. *wrightii* it is certainly very dif. vegetatively from the species. - Dec. 5, 1917

- *Calochortus flexuosus* Wats.
Jones in letter to Parish, 2/28/1912
says he collected this in Argus Mts.
He says further *C. concolor* Nelson
= *C. striatus* Parish.
- Ralph Hopping says: *Torreya*
californica has recently been
found on the Kern River,
low on the Kern, that is
near the Greenhorn Range.
I am satisfied *Taxus brevifolia*
does not occur anywhere
in Kings River. *Heteromeles*
does not occur in the ^{*arbutifolia*}
southern Sierra Nevada.
- San Diego in English is St.
James. It is remarkable
that Torrey and Gray in
their Flora of North America
should have translated only
part of the name and written
it - "St. Diego"! See 1:561 and
many other places.

- Drove in a machine to
Cedar Mt. with H. A. Dutton,
going via Livermore up
the Mocho, and soon
^{Arroyo}
turning up on the ridge
between Arroyo Mocho and Arroyo
del Valle, Mt. Hamilton Range.
- Shrubs of Cedar Mt.
- *Arctostaphylos glauca*, 6 to 12
ft. h., the most abundant
species and everywhere
giving character to the country,
always glaucous, but of dif-
ferent shades, yellowish, light green,
dark green, lavender, etc.
- *Ceanothus divaricatus*, very
whitish shrubs, the foliage
glaucous and stems white.
Leaves $\frac{1}{4}$ to $\frac{3}{4}$ inch mostly.
- Cont. p. 194.

No. 7441. *Cupressus nuttoni* Jepson.

No.	Diam. at 4 ft.	Height-
1.	6 ft. 1 in	48
2.	4 ft. 7 in	45
3	6 ft. 7	60
4	8 ft.	52
5.	6 ft. 9 in	50
6.	5 ft.	48
7	4 ft. 9 in	46

The trees are very erect with excurrent axes and narrow crowns. Nutton notices that the bark twists to the right when it is not straight up and down. The bark is fissured in such a way as to form narrow laced ribbons.

Nov. 30, 1917.

Ages

No.	Rings	Diam.
1.	106	12 in.
2.	109	11 in.
3.	97	16 in

The species forms an extensive forest covering nearly the whole of the upper basin or watershed of Tunnel Creek, a tributary of Arroyo Mocho. The forest is not continuous but keeps to the cañon bottoms and swales and saddles, but running in places right up to the crests of the surrounding ridges. Wherever it occurs it is fairly dense, but mixed with the Great-berried *Manzanita*. The area is about $1\frac{1}{2} \times \frac{3}{4}$ miles.

Cont. from p. 191.

- *Eriodictyon glutinosum*, rare
- *Rhamnus ilicifolia*, rare
- *Quercus durata*, rather common
- *Rhamnus californica* rather rare.
- *Quercus Kelloggii*; this tree was found only on the margin of the cypress area, in company with *Quercus Douglasii*. *Pinus sabiniana* was found within the cypress area as well as outside.

No. 7442. *Quercus durata* Jepson.
3 1/2 - 4 ft. h.

- From Cedar Mt. we drove with difficulty down the wet mountain side and then on to San Jose and Monterey.

- *Cupressus macrocarpa* Hartw.
Stump, cut at 4 ft., 5 ft. diam.
Age = 230 years, a conservative count. Tree about 70 ft. h.
- Another tree about 2 ft. diam.
= 200 years. - Cypress Point, Monterey.

No. 7443. *Leucodermis Greenei* *divaricata* Nutt.

See p. 191. Cedar Mt. Scraps!

No. 7444. *Stachys californica* Bth. = *S. bullata* Bth. Discard. L.R.H. 1966

There 3 sheets undoubtedly one sp., all from one spot. The broad blunt leaves were apparently caused by insect stings or possibly pathogenic.

No. 7445. *Cupressus macrocarpa* Hartw.

The differences between this and the cypress of Cedar Mt. are striking enough and may be listed as follows:

C. macrocarpa: - Bark laced in fissuring, twisted to left or straight, grayer than in

Cedar Mt. plant. Branchlets finger-pointed, the divisions tending to lie* along the main axis, or to be more or less strict. Cones ^{short} cylindric or oblong, the umbos lunate.

Cypress of Cedar Mt.:— Bark faced in fissuring, brown, spirally twisted and running to right, or straight. Branchlets spreading as if divaricate and so not finger pointed. Cones globose, the umbos peak-shaped. The Cedar Mt. tree seems to be more symmetrical than the Monterey tree, aside from the windtorn ones of the Monterey cliffs.

No. 7446. *Carex*
Pacific Grove.

No. 7447. *Eriogonum parvifolium* Smith
Woody, 1 ft. h. Pt. Joe cliffs.

— In the Catholic World, 96: 13-24 (Oct. 1917) is an article on the life of E.L. Greene by Margaret B. Downing. It is frankly an exaltation* of Greene, a mixture of religious and scientific sentiment. Greene had the great gift of making partisan friends. He had the power in an unusual degree of convincing people that his knowledge was universal, at least in many ways or particular fields. To make people believe off-hand that you know it all is one of the sure elements of mediocre success; it is also employed by people who attain to more than mediocre success as did Greene. Indeed the use of this device is widespread and is employed by the vulgar. But over and above this matter Greene attached certain people.

* It is a regular geyser of eulogy.

to him by very strong feelings of friendship. The writer of the above article is an example. It is a very readable article and contains a good deal that is to the point. She is evidently weak on the botanical side of his career since she says that he first made Eschscholzia known to the scientific world! This could only be true in the sense that he was the first species splitter in that genus. - 6 Dec. 1917.

Greene was essentially an isomoclast, rather than a constructive builder. Note that he never completed a single work but West American Oaks unless we except the Manual of S. F. Bay Reg. Botany which is a very incomplete thing.

Greene had wonderful abnegation for botany. He sacrificed everything to buy botanical books + lived in the most unpretentious way. He was absolutely sincere in his devotion to botany; yet he could never resist the temptation to impress people with all this ^{i.e. his sacrifices and abnegation.} People like to be impressed; they were eager and waiting for it to be done in the way Greene could do it - like an unchained solemn benediction.

There are those who do not regard it as a sacrifice to work for the thing they most of all care ^(nor did Eugene really, but he used the fact on the side to impress) for in this world. His biographer can not resist telling how well he reproved persons for their ignorance*. He certainly was at home in making plain his superior classical knowledge.
* see footnote p. 200.

Dec. 7, 1917.

If you follow the biographer closely you will see that she holds him up as a great man because he denounced the use of "yellowstonensis" as a specific name!

Torrey 17:206 tries not to let the vindictive Mrs. B's attacks on Greene sink into innocuous desuetude.

A just estimate of Greene will come in due time, particularly when petty foibles which loomed so large at times will disappear with those who knew him ^{and} only his real effort, be it for good or the reverse will survive.

— Greene, E. L. Bibliographical Notes on Well-known Plants (Bull. Torr. Club, 1887-1888.

* Froehde from p. 199. He often picked out some one who was classically and sometimes botanically an ignoramus. Thus the contrast between himself and the ignoramus was very telling.

Berkeley, 1917. Dec.

Alameda Co. 201

No. 7448. *Solanum nigrum*

Berkeley, Dec. 21.

No. 7449. *Platanus racemosa* Nutt.
Sonoma Mts., Dec. 1, 1917.

— Went on walking trip with the Richardson children, Florence and John, into Telegraph Cañon and up over the south ridge. We gathered *Micromeria douglasii* (Yerba Buena) for its fragrant foliage, which is now very spicy. The plants are in full leaf and evidently evergreen!

Vicia gigantea has sent up its new shoots one foot high already! — Dec. 29, 1917.

— *Menodora spinescens*. Abundant all over the flat at Lee Flat, 15 mi. n. of Darwin. — Grinnell, 1917.

- Greene E. L. I have often remarked that altho Greene ardently believed in field work he really knew very little of California ^{as a whole}. No one could have botanized in the high Sierras without collecting *Helenium Hoopesii* Gray. But in Fl. Fr. 435 he quotes only the Sonora Pass locality mentioned in Bot. Cal. Numerous other instances could be cited.

- Jones, W. E. Numbered each year's collection separately from 1 up, at least for certain years if not regularly. He numbered his sets as a whole in sequence. That is he has a no. 348 of Set. 2548. See his letter in 1918 file, January.

- *Tetradymia spinosa* H. & A. Abundant on Lee Flat, 15 mi. N. of Darwin. "Cotton Bush" - (Cotton Thorn is better). Spm. by J. Grinnell, 1917.

- *Purshia glandulosa* Burran. Silver Cañon, White Mts., A. B. Shelton, July, 1917. Also near Benton, Mono Co., acc. Grinnell, 1917. Shelton collected a spm.

- *Primavera*, Mexican timber = *Tabebuia domnei-smithii* Rose. See refs. Contrib. U. S. Nat. Herb. 1: 346, etc. Also Bailey, Standard Cycl. 3303.

- *Cheilanthes clevelandi* F. W. Koch says this has a peculiar and delicate fragrance which is possessed by no other *Cheilanthes* or fern. He harmonizes ecologically the desert *Cheilanthes* with their short growth season and the High Sierran *Cheilanthes* which have too a brief period

in which to accomplish reproduction.
He says *Adiantum pedatum*
requires a locality where vegetation can go on for 8 months.

- Sacred Thorn - Corona de Cristo.

1. = *Holacantha Emoryi*.

2. = *Koeberlinia spinosa*. See
Erythraea, 5:39.

3. = *Dalea spinosa*. cf. 26:106,
27:45.

- Largest Torrey Pine, 110 ft. h.,
in the world, wantonly cut
down at Pasadena, Jan.
1918. — Dr. James James.

This was of course a cult. tree.

- Greene, E. L. Botarizing in the
Colorado Desert. *Ann. Nat.* 14:
787 (1880); 15: 24-32, — 1881.

- "Palmitas Spr. in Carrizo
Creek, betw Coyote Creek and
Fish Creek (w. Black) Mt., lies
on edge Imperial Valley.

- "Salt Creek, only below the line
so far as I know.

- "Barrego Spr., or wash running
into San Felipe Creek from the north.

- "Graperine Cañon, headwaters San
Felipe Creek."

- All the above from
D. B. McHain, U. S. G. S.

- International Map of the World.
Contour. One Cal. out, from San Luis
Obispo to Humboldt.

- U. S. Geol. Sur. map of Oregon.

- *Ranunculus occidentalis*. Miss
Wicks speaks of the calyx of Red
Bluff plants as being entirely dif.
from Bay region species. See her spms.

- Miss Mabel Person, Teacher of
Biology, Pasadena High. [Has a
brother, business man in L. A.]

- A. C. Shelton, Univ. of Oregon,
Eugene, Ore.
- ^{Don} D. C. McLain*, U. S. Geol. Survey,
Washington, D. C.
- H. G. White, Pomona College, Clare-
mont.
- Emil Henry Marsilene, sheep-
herder at Mc Apple Mtn.
- Shipley, the one-eyed
sheep-man, Bishop

* 1705 Fair Oaks Ave.,
Glendale, Cal.
Ballarat

- M. J. Sherlock, desert rat, Ballarat.
- Mr. Hershey, Surprise Cañon, "

Death Valley.

- Oscar Denton, Greenland Ranch.
- Harry Gouss, Commissary Clerk, Ryan.
- Faulkner, Supt. Lila C. Mine, Ryan.
- Putnam, Prospector.
- Arndts, U. C. 14, Engineer, Ryan.

Death Valley

- Panamint Tom, Panamint Chief,
Furnace Creek Ranch.
- Bill Boland, Furnace Creek Ranch.
- Sutton, Pastmaster, Ryan. Indian.
- Death Valley Scotty.